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The NATIONAL HORTICULTURAL MAGAZINE



JANUARY . . . 1931

The American Horticultural Society

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The National Horticultural Magazine

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SHERMAN R. DUFFY, BERNARD H. LANE, J. MARION SHULL, HAMILTON TRAUB,
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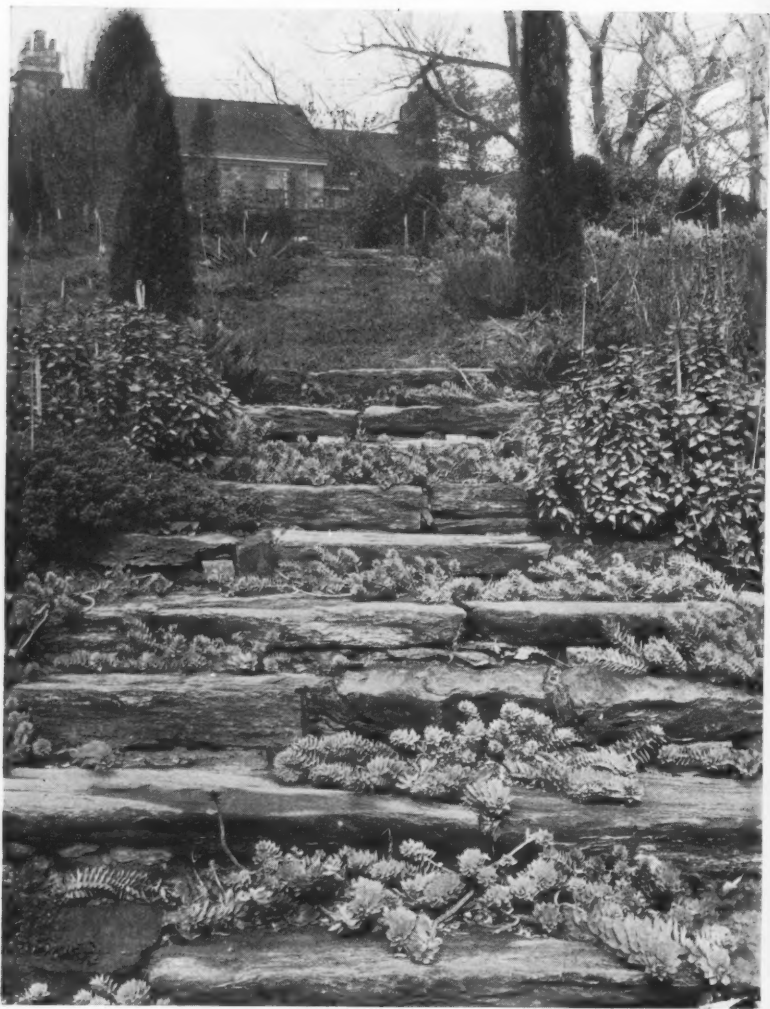
No. 1

JANUARY, 1931

Primulas—I. By JENNIE TILT ARMSTRONG	7
Plant Emigrants. By M. F. WARNER	10
A Note on Raising Succulents from Seed. By EDWARD A. GOUCHER	20
Casual Chrysanthemums. My MARY JUDSON AYERETT	22
The Idealist in the Garden	29
The Sempervivums—Les Joubarbes. By HENRI CORREVON	33
Roosevelt Cabin—IV. By FANNIE MAHOOD HEATH	41
A Book or Two	45
The Gardener's Pocketbook:	
<i>Prunus serrulata</i> , var. Kwanzan. By PAUL RUSSELL	46
Clematis, Campanile	48
<i>Allium flavum</i>	50
<i>Camassia leichlini</i>	50
<i>Rosa pomifera</i>	52
<i>Syringa yunnanensis</i>	52
<i>Regelio-cyclus iris</i>	54
<i>Lilium nepalense</i>	54
<i>Brodiaea hendersoni</i>	56
Poet's Narcissus	56
After the Drought. By SHERMAN R. DUFFY	58
Passing Comment—Succulents	66
Fringed Gentian. By FRED M. ABBEY	70
Correspondence	71

Gardeners, perhaps more than any people, have a true value of the seasons, with an interpretation of seed-time and harvest, of sowing and reaping, of cultivation and pruning, that have come to take a place in our tongue and thought, with something of more subtle meaning than the mere words convey. Gardeners too, have come to have a certain understanding of the fulfilment of cycles, of living and of dying, and of springing again, that is nearer to the heart than can be imagined by people who have never felt that pulse of life. The season that has passed has gathered many souls as well as plants, among them two of our circle, our late President, Mr. F. L. Atkins, and an Honorary Fellow, Dr. E. H. Wilson. We salute them, the lives they lived, the harvest they have left for us, and hope for them an awakening beyond our present understanding, but one that shall not miss the splendor of Spring itself.

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Edgar T. Wherry

Rock steps in Mr. Furness' garden at Media, Pennsylvania, showing on either side towards the top, Cistus laurifolius, three-year old plants and down through the steps Euphorbia myrsinites, a lovely, blue-green, snake-like euphorbia that sows itself freely in sunny places

Primulas—I

By JENNIE TILT ARMSTRONG

Among the most attractive and fascinating families of herbaceous plants the genus *Primula* stands well to the front. It is a family that gives a great scope to the gardener, as some of its members are easily pleased while others are more difficult. It is a very large family and dates back to the earliest days, thus including in its members antiques and moderns, with a long line between. "Primroses" are mentioned in the very earliest garden books, and have always been a goal for plant collectors in foreign lands. Some of the most important discoveries in plant life during the last few years have been new *Primulas*; new species are continually being added, bringing the total up to a bewildering number. Not all of these, nor yet a fair proportion of them, are in American gardens, and many of them are still rare and difficult in England, but enough have proved hardy and satisfactory in our gardens to make the future of primulas in this country quite encouraging.

Primulas offer a great variety as to size, form, color and time of bloom. There are species suitable for the border, the rock garden, or the bog, and the time of blooming extends from earliest spring until late summer, with often a scattered blooming in the fall. We are seldom without some *primula* bloom during the growing season.

Good drainage is most important for the successful growing of primulas. They must have moisture, but do not like a sour or stagnant soil, so drainage can not be too strongly emphasized. Indeed, with plenty of moisture and good drainage primulas will sometimes put up with soil that is not altogether to their liking. As a general rule they like a good rich loamy soil with peat or leaf mold added, and stone chips to

assist drainage. The robust varieties like a fairly heavy soil, and appreciate a little well-rotted manure. As Farrer says, "all primulas have roots as long as a Scotch sermon," so the subsoil should be quite nutritious. So give them good soil, plenty of moisture in summer, with good drainage, and in winter keep their crowns dry, and you will have solved the problem of most species. In case of the deciduous sorts it is well to remove the leaves after they have been killed by frost to discourage rotting at the crown. It might be well to say here that a long cold winter with plenty of snow is good for them; it is the variable weather with alternate freezing and thawing that is bad. After the ground is well frozen cover the plants lightly, preferably with salt hay, which does not pack, and which does not carry weed seeds.

There is a popular idea that all primulas should be planted in the shade. The fact is that many of them will stand a great deal of sun, provided they have plenty of moisture. They do require some sun, the European species more than others. The ideal way is to place them where they will have sun part of the day. The larger varieties may have the shade of trees or shrubbery, and the smaller rock garden primulas the shelter of a rock. We have many primulas growing in full sun, and with plenty of moisture they have thrived wonderfully. This past summer with its extreme heat and drought was a good test. Peat in the soil, and as a light mulch helped to conserve moisture.

Primulas may be propagated by division, or raised from seed. In some species the crowns multiply quite rapidly, and this is the best way of increasing the stock, especially if a particular form or color is desired. It

is better also not to let the plant become too crowded in growth. Division may be made several weeks after the plant has flowered. Because of the scarcity of the rarer primulas in this country, and the strict quarantine law, sometimes the plants are hard to obtain, but they can be raised from seed. This is not difficult if fresh seed can be had. It must be secured from reliable sources in order to have it fresh and true to name. We have found it best to sow the seed in late fall or early winter and let it have the action of frost and a good fall of snow. The seed flats should be covered while waiting for a snowfall, to protect them from beating rains and the ravages of squirrels and similar animals. We have had much weeping and gnashing of teeth over the inroads of squirrels in our seed flats. If a greenhouse is available, that simplifies matters, as, after a cold period and a covering of snow, the flats may be taken into gentle heat and germination thereby hastened. In any event the seed flats should not be discarded too soon, as sometimes germination may not take place for a year or more, and on the other hand, if there is a speedy germination some of the seeds may lie dormant for another year, and these late comers are often the choicer plants.

The genus *Primula* is divided into sections, grouping the species of similar characteristics, and the sections embracing hardy species that may be grown in our gardens are as follows: *Auricula*, *Candelabra*, *Capitatae*, *Cortusoides*, *Denticulata*, *Farinosae*, *Muscarioides*, *Nivales*, *Sikkimensis* and *Vernales*. As mentioned before, some of these sections are easier to cope with than others, so it is best for the beginner in primula growing to start with the easier forms and gradually work up to those more difficult, difficult only from a lack of experience, patience, and dogged determination. In our experience there have been many failures, in the early days more failures than success; but any success at all is a

wonderful boost and encouragement to a keen gardener.

The simplest of the *Primula* sections comes at the end of the list, that of *Vernales*. Here are the *Polyanthus* and *Cowslip*, and the true English Primrose (*P. acaulis* or *vulgaris*). The two former are ironclad in hardness while *P. acaulis* needs a little more care. It is hardly necessary to describe these particular plants, as they are found in many gardens. Suffice to say the *Polyanthus* and *Cowslip* carry their flowers in umbels, *acaulis* has but one flower on a stem. *Polyanthus* and *acaulis* have a wonderful variety of colors, and while culturally the easiest of the family, they are not the least lovely. For sheer beauty a mass of *Polyanthus*, either in different colors, or in yellows or whites, can not be beaten. They are not particular as to soil (excepting very sandy soil), and are to a great extent even drought resisting. At the same time they do appreciate care, rich soil and abundant moisture, and repay amply for it.

Another member of the *Vernales* group is the little *Primula juliae*, which differs considerably from the other members of the group in having a rather fleshy running root, and small round glossy leaves with a cordate base. The blossom is deep crimson with a yellow eye, one on a stem and resembles *acaulis*. This primula especially loves moisture, being found under waterfalls in the Caucasus. *Juliae* is hard to obtain, as it seldom sets seed, and only a few nurseries in this country offer it. However, it divides easily, is perfectly hardy, and is fine for the rock garden. It has produced some splendid hybrids with others of the section, which are in different colors and show both types of blossoms.

Another easily grown *Primula* is *denticulata* from the section of the same name. It is really the only one of the section that is obtainable here, and is perfectly hardy. *P. denticulata* blooms very early, the buds appearing simultaneously with the embryo leaves, and

must be protected in case of frost coming after it has started to bloom. When it first comes out of the ground it looks much like a lily bulb, but soon loses that resemblance. Later the leaves are more like those of the common primrose, but much larger and coarser when fully developed. The blossom, characteristic of the section, is a ball-shaped truss of sessile flowerets on a tall stem, in shades of lavender, and sometimes purple or white. *P. cashmeriana*, which is a form of *P. denticulata*, is a name of much controversy. Mr. Cox in "Primulas for Garden and Greenhouse" says, "the less said about this name the better." "It used to be listed as a separate species of *denticulata* but to all intents and purposes the names are synonymous."

Section Auricula differs from all the other hardy sections in having involute leaves (leaves curling inwards). I will mention only one plant from this section at present, *P. auricula*, which has a rosette of glabrous leaves, and umbels of sweet-scented flowers on more or less mealy stems. Sometimes there is considerable meal on the flowers and leaves also. In fact, this meal or paste is made quite a factor in judging the Auricula at flower shows in England. The blossoms are reds, browns, blues and yellows, with intermediate shades and combinations, but there is none lovelier than the original Alpine yellow.

Most of the primulas in the Candelabra section are easy of culture, and most satisfactory in form and color.

These we will go into in detail later, but the beginner will find that the Candelabra primulas, *japonica*, *bulleyana*, *beesiana* and *pulverulenta* are among the hardiest of primulas, and make a fine showing after the earlier Vernales section has gone.

P. florindae of the Sikkimensis group is one of the comparatively new primulas, and is making itself thoroughly at home in American gardens. We have grown it in sun and shade, and this past summer had a large block of plants in full sun. Well watered, they grew and waxed fat, and sent up innumerable heads of yellow bell-shaped blossoms. The Sikkimensis section is most interesting, and has many lovely and hardy members that will be dealt with at length later on.

The writer's garden is in about as difficult a location as any in the country, that of the Chicago region. The last year or more has been most unusual in its extremes of temperature; a particularly aggravating winter and spring season, a summer almost unparalleled for heat and drouth, and a fall equally disconcerting to a gardener. In spite of all this, our primulas with very few exceptions have come through with colors flying, and are going into this winter in satisfactory condition. This has meant care and work, but other plants have required that also. So the word may be passed on to other gardeners, that primula raising, in the main, is satisfactory.

"Plant Emigrants"

By M. F. WARNER

Even in this day of transcendent discoveries in science much romance attaches to the work of the plant explorer, both as a matter of personal adventure and the great possibilities of usefulness in some of the plants he finds. But, looking backward, one sees in plant introduction a strong link between social history and the development of botanical science. Periods of exploration and colonial expansion have usually been accompanied or immediately followed by great zeal in the acquisition of plants by rich amateurs, and the consequent establishment and maintenance of notable "Hortuses." These in turn gave inspiration and opportunity to great botanists; a Linnaeus revelling in the collections of a Clifford or corresponding with pioneer American naturalists like Garden and Colden; or a Clusius, who seems to have known all the travellers, collectors and botanists of his day, and whose patrons were kings and princes and persons of wealth and importance, so that his "History of Rare Plants" and his letters read like a directory of names notable in science, commerce, letters and statecraft of his time.

Remarkable contributions to the history of cultivated plants are connected with the exploration and discovery of the Americas. The striking nature of some of the early introductions from Spanish America, as Nicotiana, Maize, *Solanum tuberosum*, Mirabilis and "Aloe americana" or Agave overshadowed the immediate interest of the herbs and trees of the French and English colonies of North America. These came into Europe a little later, comprised fewer spectacular novelties, and some of them were grown for years before they attracted attention. Their history is hard to trace; we do not know by whom they were origi-

nally brought in, or where they were first grown. But others were rapidly distributed, as the Arbor Vitae (*Thuja occidentalis*), which Pierre Belon ("De Arboribus Coniferis," Parisiis, 1553, 13th leaf; "Les Observations de plusieurs Singularitez et Choses Mémoires," Anvers, 1555, 293d leaf) says was brought to Fontainebleau in the time of François I. It is supposed to have been brought back from Canada by Jacques Cartier's expedition in 1534. Clusius tells us that owing to the ease with which it can be rooted, twigs sent from Paris multiplied so rapidly that by about 1570 there was no amateur of plants in the Netherlands who did not have a specimen of this shrub in his garden.

While the exact date of introduction into France can not be found for many Canadian plants, we know some of them were cultivated and distributed by Jean and Vespasien Robin of Paris in the first quarter of the 17th century and were listed in Jean Robin's "Catalogus" (Parisiis, 1601). The earliest botanical descriptions of about forty characteristic American species occur in Cornut's "Canadensium Plantarum aliarumque non editarum Historia" (Parisiis, 1635). These include familiar plants like *Aquilegia canadensis*, *Asarum canadense*, *Cypripedium spectabile*, *Trillium erectum*, *Smilacina racemosa*, *Tradescantia virginica*, *Fragaria virginiana*, *Robinia pseudacacia* and *Adiantum pedatum* and the one by which the name of this French botanist is commemorated, *Asclepias cornuti*. His descriptions were made in great part from specimens in the Robin collection, but refer also to other Paris gardens. There is also a catalogue of the collection of René Morin (1621) which includes a number of American species, while the Jardin du Roi, founded in



1626, ten years afterward, contained about fifty American plants, as shown by the "Catalogue" (Parisiiis, 1636) of Gui de la Brosse, but neither of these two works contains any descriptions. Somewhat earlier than Cornut's work were the drawings of Pierre Vallet, "Brodeur du Roi," which

were also partly based on the Robin collection. His "Jardin du Roi très-chrétien Henry IV" (Paris, 1608) consists of the indigenous and Oriental flowers grown in Europe in the last part of the 16th century, but a later edition with title "Jardin du Roi très chrestien Louis XIII," printed about

1624, is enlarged by twenty plates of new plants, several of which are North American.

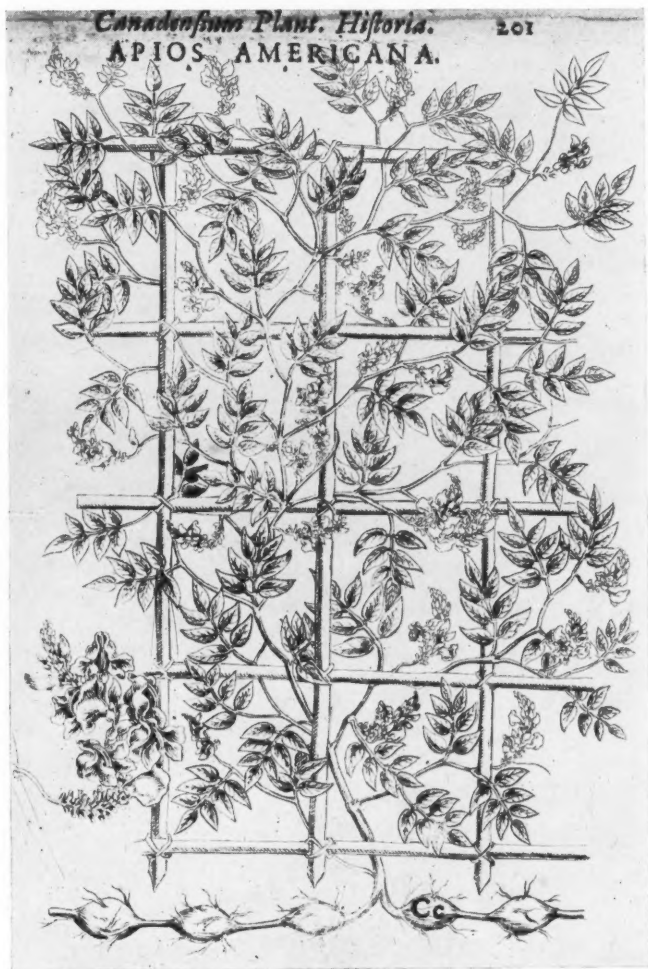
Parkinson's "Paradisus" (London, 1629) indicates that some of the first Canadian plants in England came by way of France, as for instance his "Martagon Canadense maculatum" (*Lilium canadense* L.), which he says was "brought from Canada by the French Colonie, and from thence unto us." The English interest in such novelties soon resulted in direct importation of seeds and plants from the New World by many of their traders and travellers. The Tradescants, as we know, were actively concerned in procuring new plants, and the younger John himself made a journey to Virginia for that purpose. A good deal of exchange was carried on, whereby American plants filtered into England from continental sources and vice versa.

In connection with the earliest known American plants it is interesting to note the use of the terms: American, Virginian, Canadian. As was natural, the first of these was applied to the earliest introductions, largely from South America, while the latter two afforded no indication of the present geographical range of the species. Thus *Tradescantia virginica* and *Fragaria virginiana*, as well as our familiarly called "Virginia creeper" (*Ampelopsis hederacea* DC.) are among Cornut's Canadian plants, while his "Vitis canadensis" (*Rhus toxicodendron*) as well as *Asarum canadense*, *Sanguinaria canadensis* and *Aquilegia canadensis* are widely distributed throughout the "Virginia" of the 17th century and abundant in our modern commonwealth of that name. Many, in fact, of the species introduced into Europe from Canada, are found only in the southern parts of the Dominion, but are common far southward through the Atlantic States and westward across the Mississippi to the very borders of the "Great Plains." So it happens that many a child of the prairies has grown up with the colum-

bine, the bloodroot, the lily and the wild ginger of Canada, and the strawberry and spiderwort of Virginia.

Never was anything like the riches of the wooded bottom lands of Iowa for the urchin of seven or eight years, with keen eyes, a zest for exploration, and a flower-loving mother to encourage new discoveries. One of my first was a delicate vine found near the river in the borderland between timber and prairie. Any child might know it for a member of the pea family, with its compound three- or five-parted leaves and winged flowers. But its color was so unusual, a soft pinkish tan like chocolate made with lots of rich milk, and it had such a heavenly smell! The location of the vine was fixed in mind and visited year after year, for no others were ever found in our happy hunting grounds, and try as we might, we never found any seeds. It was familiarly mentioned as the "chocolate vetch," but its other name, *Apios tuberosa*, which mother found in the "Manual," was reverently remembered and served in after years to recall one of childhood's most vivid joys. What a thrill, then, was mine, to find in Cornut's yellowed pages a figure of his "*Apios americana*," stiffly disposed upon a trellis like a sedate domesticated grape vine! Cornut does not tell us when it was introduced, but it had flowered from seed sown some years earlier by Vespasien Robin. Thus had my lovely "chocolate vetch" been prized and tended in Paris two hundred and fifty years before I knew its loveliness. One of the joys of such "finds" is that they gain rather than lose when they are shared with the generations and the centuries.

There are only a few lists of names and a few old illustrations to tell the tale, but doubtless many of the French garden lovers delighted in the modest wild flowers of northeastern America in the early 17th century just as much as we to-day rejoice in new hardy ornamentals from China or strange succulents from Africa.



The two illustrations are photographic copies from Cornut's "*Canadensium Plantarum aliarumque non editarum Historia*" (Paris, 1635), showing Cornut's milkweed and the groundnut



Michael Carron

Kalanchoe synsepala (F.P.I. 78431) with horny-margined leaves and an unidentified *Kitchingia* species (F.P.I. 75916) the color of old copper tarnished with silver



Michael Carron

A tall growing aloe, a clumsy pachypodium (F.P.I. 78446) and a young plant of
Aloe andrigitensis (F.P.I. 79150)



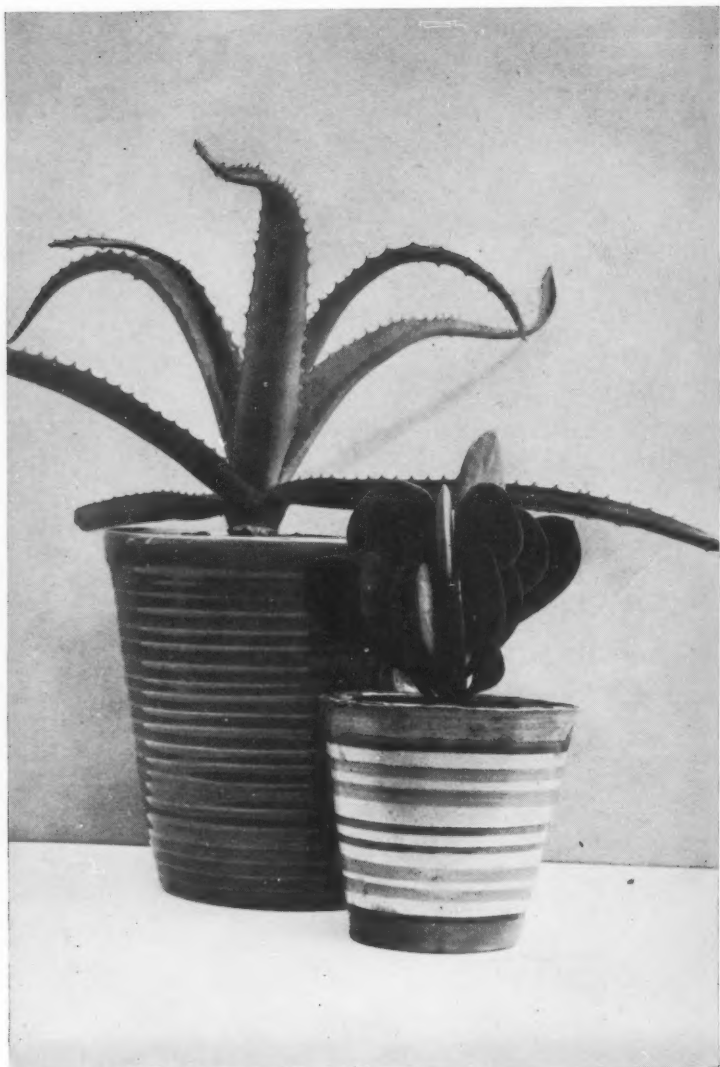
Michael Carron

The tall growing, glaucous-leaved cotyledon contrasts markedly with the dwarf caralluma (Caralluma lutea F.P.I. 78190) not yet showing its foetid blossoms.



Michael Carron

*The white encrusted leaves of *Haworthia reinwardtii* give a curious feather-like pattern of utterly different design from that of the stiff-leaved *Apicra deltoidea* (F.P.I. 78189)*



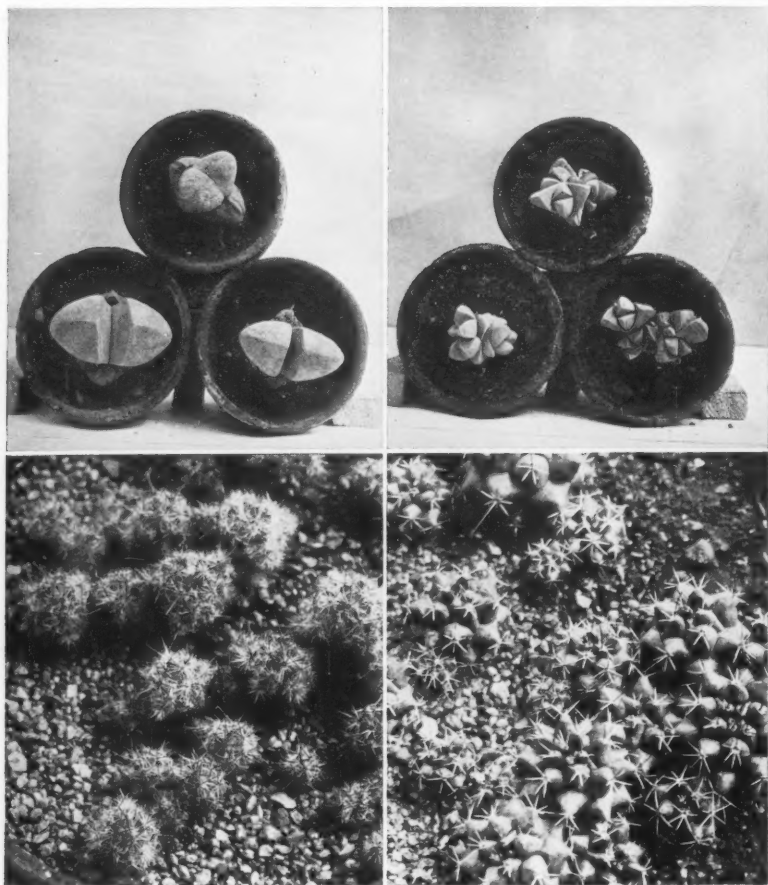
Michael Carron

The photograph shows the serrate margins of the young plant of *Lomatophyllum roseum* (F.P.I. 78440) but can not show the bronze-pink color. *Senecio* sp. (F.P.I. 77934) displays its marked radial leaf arrangement



Michael Carron

Coarse-leaved Kalanchoe dyeri (F.P.I. 81172) has not yet sent up its slender flowering stalk while the tender *Sempervivum haworthii* (F.P.I. 81196) already shows its branches and braces



Seedling *Mesembryanthemum bolusi*, *Argeta petreensis* and *Neomamillarias*

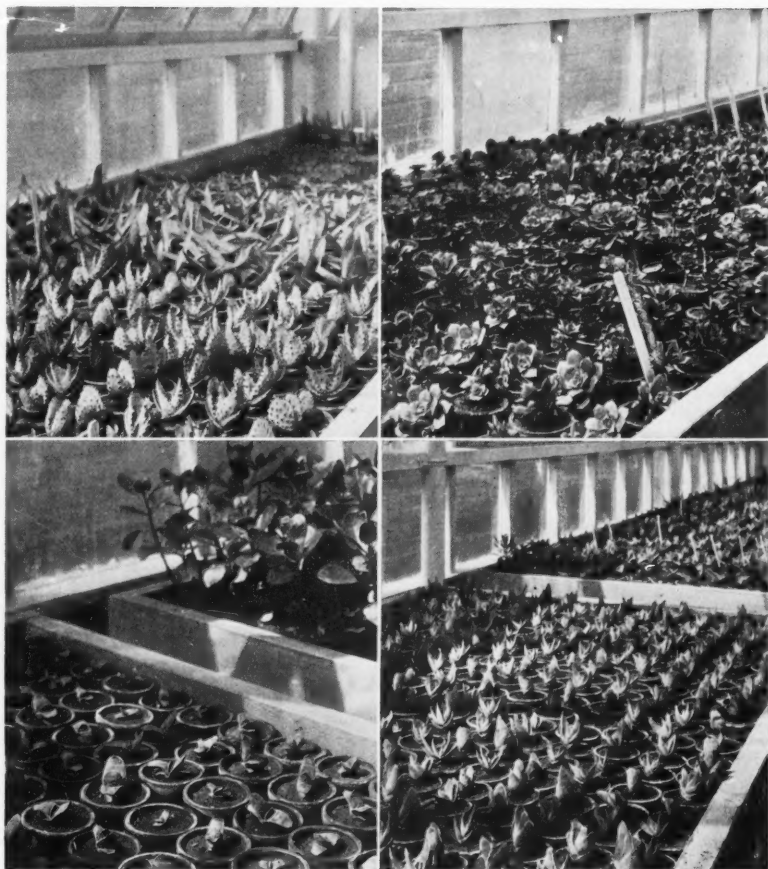
A Note on Raising Succulents from Seed

By EDWARD A. GOUCHER

As one has more experience in raising plants from seed, various routine practices become commonplace and serve as guides in the handling of unfamiliar seeds as they are received. For the amateur who has never grown

from seed the various plants known as succulents, their culture may seem difficult because it is unfamiliar and because the plants themselves seem somewhat set apart from their fellows.

As a matter of fact their cultiva-



Aloes, tender Sempervivums, Gasterias and more Aloes

tion is not very different from that of other plants if certain factors are cared for. As with other plants, fresh seed give the best result. Seed produced in the home garden often surpasses any brought from other places. Soil and containers should be free from fungi that might cause damping off or otherwise imperil the young plants. The soil mixture must be to the liking of the particular plant and its preferences in temperature and moisture must be considered.

As a matter of general practice, we usually sow our seeds in 6-inch pots, using an ordinary garden soil to which a little sharp sand has been added, and a considerable supply of drainage material. The soil is pressed firmly in the pot and the seed sown on the level surface. These are covered with a layer of coarse sand or fine gravel, depending on the size and kind of seed. Large seeds are sown on surface soil and just covered with coarse sand or fine gravel and watered down with fine

rose on watering pot. Small seeds should be sown on surface of coarse sand or fine gravel and watered down. They are then set on the bench and not watered again until needed. A pane of glass covering the pot assists in maintaining uniform moisture and heat, and a light shade is useful until germination starts, especially during the summer months. Germination is hastened by a little mild bottom heat but this is not absolutely necessary. If no heat is available, it sometimes happens that hard-coated cactus seed will lie dormant for a considerable time before sprouting, so seed pans should not be abandoned too soon.

As with other plants, the young seedlings must be transplanted when they have reached a sufficient size for convenient handling. They may be set in pans or flats at suitable distances, remembering again the individual preferences for soil character and drainage. As for other plants, some pains must be taken at transplanting, to compensate for any root disturbance, by shade and watering.

When the seedlings have developed further they are then ready for potting. The root system of the individual seedlings should determine the size of the little plants, remembering always not to overpot and to observe the proper characteristics of soil and drainage.

In growing seedlings of succulent plants, the amount of light must be determined by circumstances. The fact that adult plants may prefer full sunlight must not necessarily bring one to the conclusion that seedlings need equal amounts. As a group they prefer ample sunlight but this must be tempered to the age and disposition of the individual plants.

The accompanying illustrations show seed pots of *Neomamillaria longimamma* and *N. elongata* (natural size) with seedlings even a little larger than need be for first transplanting, newly transplanted mesembryanthemum seedlings and general bench views of seedling sempervivums, aloes, and gasterias growing on for their first repotting.

Casual Chrysanthemums

By MARY JUDSON AVERETT

Regular care is given in this garden to daffodils, to certain species of irises, to a small bed of roses, and to a few other things, but chrysanthemums get only casual attention and yet from October sixth to Thanksgiving, with any luck at all as to weather, a bouquet can usually be found for the table and most of the time the view from the windows looking up the slope of the cutting garden is aglow with their rows of bloom. The aspect is south and east, sheltered on the north by a steep face of trap rock and on the northwest by a curving arm of woods and shrubbery border. Just back of the house a grass panelled terrace has narrow

perennial borders behind which rises a bank covered with bearded irises. From the top of this bank up to the limit of the place the natural slope is used as a cutting garden and nursery, a small place for such an impressive name.

Some time in June, as early as possible, the bare spots in the borders on the terrace are filled with zinnias and chrysanthemums planted together about six inches apart each way. After the first killing frost, usually in October, the zinnias are pulled out and the chrysanthemums are allowed to bend over at will. The falling leaves drift in among them and provide

some shelter for late blossoms until the whole place is cleared off and bedded down for the winter after the first freeze of December.

At the top of the iris bank runs a narrow work path separating the irises from the first bed at the cutting garden. This bed is four feet wide and as long as the garden. In the rear three feet of it grow my choicest daffodils, above whose precious bulbs the soil is kept bare and cultivated after their foliage has ripened and died. In the foot of space between the bulbs and the path I plant a row of chrysanthemums and back of them a staggered row of zinnias. Early in September a length of twenty-two inch guard wire goes into the ground at the front edge of the bed. When the supporting zinnias are pulled out the chrysanthemums lean over the wire and the elongated pedicels push through it, reaching for the sun, so that in good seasons they make a great bank of bloom.

Behind this bed and parallel with it but separated by a work path is another of the same size. Peonies grow here, six feet apart with their crowns just to the front of the middle of the bed. The back of this bed, a band increasing in width from one foot eight inches behind the peonies to two feet six inches between them, is filled with daffodils in variety which get the same treatment as the ones in the first bed. The front carries one long row of chrysanthemums with two additional short rows in all the spaces between the peonies. I use bronze and yellow and deep red here for the effect with the autumnal color of the peony foliage. Here, too, the supporting guard wire goes up in September. This bed gives me three periods of bloom and hides from the house the bare ground devoted to the daffodils. In April the daffodils make a scalloped band of yellow straight at the back with points extending towards the front between the peonies which are then just thrusting up their fat pink shoots; in June there is a straight row

of pink and white peonies; in October and November the chrysanthemums reverse the scalloped pattern with the straight edge in front and the points going back between the peonies.

The rear boundary of the place is another steep bank with forsythia at the top, a thick row of the daffodil, Autocrat, at the bottom, and between them dwarf bearded irises interplanted with various manavilins which thrive on rough, stony ground and a lean diet. (Note the word *manavilins*, meaning odds and ends, which I parade proudly as a recent importation from England, sneaking past the quarantine officials among the leaves of the New Flora and Silva.) Just back of the daffodils there is a long row of single yellow chrysanthemums. This variety was bought years ago under the name of Vivian Cook but blooms earlier than any of that name which I have acquired recently in an attempt to verify the variety. The original two plants have increased to a forty foot row here and have overflowed into the gardens of my neighbors and friends. The tops are cut to about eight inches when the bloom is over and such leaves as drift in among them are left lying there; no other winter protection is given them. In the spring all shoots which encroach upon the daffodils are ruthlessly pulled up and here and there clumps are dug for the basket of a visitor, but they have not been lifted and divided for four years. When the daffodils get their annual dose of bone meal and wood ashes doubtless some drifts in among the chrysanthemums, but no other food is given them. The top flowers come into bloom on October sixth with remarkable regularity. As they are not staked the weight of blossom bends the stem and new flowers come from the leaf axils all down its length. The greatest profusion of bloom is reached the last week in October, but even after a hard freeze I am often able to gather from them a respectable bouquet for the table as late as Thanksgiving,

though of course the foliage is spoiled.

Besides this yellow my list of reliably hardy varieties is small: Donald, a pink button of vigorous habit, resistant to disease and to frost, handsome stems and foliage; Dream, a large pink pompon of irregular outline and rather flat surface,—not smug and fat like the Dotys,—each flower set out nicely from the main stem on a long, wiry pedicel; Well's Scarlet, a small button which is a dark true red; Mrs. Frank Wilcox, a larger kind of bronze red and orange coloring, has survived two winters in the open,—a nice flower for cutting, with weakish stems; and a few tried and true sorts without names which have been begged from scattered door yards. The others winter in a cold frame. Only one frame, and that a small one such as Mrs. Wilder describes, can be spared for them. While they are in bloom I label the clumps to be stored, using wooden labels with copper wires. Then any day, from the end of November until February, when the weather is propitious and the gardening mood is on, I lift them and crowd them into the frame, shade them with a light cover of oak leaves or a film of salt hay, and let down the glass, slipping a piece of lath under one end to provide for a little circulation of air. The latter part of March the covering is removed and on mild days the glass is raised. In April I begin making new plants, using three methods: taking off the sprouting shoots which rise from long underground runners and already have a few roots; making regular cuttings from the new growth at the center of the clump; tearing the whole clump apart and setting each piece separately. If I need more plants than this gives me I continue the process up to the middle of June by taking out the tops of the rooted cuttings and sticking them in the ground to root in their turn. These late rooted plants always bloom and at about the same time as the April rooted ones, though the plants themselves are nothing like so

large. Usually the first cuttings are put close together in a seed bed where they are easy to care for, but if this space happens to be needed they are put at once in the places they will occupy all season, a greater number being set to allow for losses. Often I put an undivided clump among my young plants for the sake of its mass of foliage and its look of permanence, but in seasons of drought such clumps with their greater root competition suffer more than the new plants.

As for summer care, I try to keep them pinched to induce branching though I do not pinch after the fifteenth of July. When I am tending the roses I once in a while shake the bag of sulphur and arsenate of lead dust down the length of the rows, or spray them with bordeaux, whichever I happen to be using. This helps to keep the foliage from drying up at the base. So, too, when I am going over the roses for aphides, the tips of the chrysanthemums which are infested get their share of tobacco dust. For food they only get the crumbs from the table of the daffodils except on rare occasions when I have a little compost which can be spared to mulch them in September. In periods of continued drought the whole nursery gets a soaking about once a week, a ring sprinkler being used and kept running all day with occasional shifts of position. When frost has cut down the rest of the garden and a mild dry spell follows, as frequently happens, going along the rows of chrysanthemums with a watering can makes a pleasant bit of Indian summer gardening. This watering is not necessary but it does make the blossoms larger. Of course if I took my chrysanthemums seriously I could work out a schedule for all these operations, and more, and could probably produce some exhibition blooms, but I consider them as annuals and do what I can when I can. Though some cuttings fail to root and some plants lose all their foliage and some flowers succumb to an early freeze, the ease with which they may

be multiplied and their tolerance of neglect make it possible to have them in such numbers that, despite these casualties, many will bloom abundantly and prolong the flowering season by weeks. Allowing them to push through and hang over a guard wire gives stems of all degrees of curvature which lend themselves to more graceful forms for house decoration than can be had with the straight stems from the greenhouse.

As a lover of peace and fair play I approve Richardson Wright's advice to "stop gardening at four o'clock, wash up, and be cordial to the rest of the family," but when I have done the

first part of this I sometimes find the rest of the family *in absentia*. On such occasions I am glad that some garden operations can be performed in attire befitting a perfect lady. As the chrysanthemums grow at the edges of paths, I can, with the aid of a pretty smock and a pretty basket, send many an aphid to oblivion under a pinch of tobacco dust and check the sky-scraper aspirations of many a growing tip, presenting, meanwhile, a leisurely and dilettante appearance to the eyes of chance visitors and homecoming intimates.

Chatham, N. J.



Edgar T. Wherry

Daphniphyllum macropodium

[See page 26]



Edgar T. Wherry

Elæagnus pungens

Nearly all gardeners are interested in broad-leaved evergreens, especially as the northern limits of hardiness are discovered. The pictures of this group were made by Dr. Wherry in the garden of Mr. Fairman Furness at Media, Pennsylvania, where many unusual plants are growing.

The plant illustrated on page 25 is *Daphniphyllum macropodum*, an evergreen small tree of the Euphorbia Family, usually considered hardy only on the Pacific Coast, but surviving here, growing slowly with brilliant red stems and dark green leaves but no sign of flowering.

The evergreen *elæagnus* of this page is well known in the South. This specimen is ten years old and has been sheared back to keep its growth within bounds. The evergreen leaves are a light green on top and an almost silvery white beneath. The young shoots are a rich cinnamon color. It blooms in October, producing small fragrant cream-colored bells too late for the ripening of the fruits that are so brilliant a feature in the South.



Edgar T. Wherry

Mexican Orange — Choisya ternata

Gardeners on the Pacific Coast are familiar with the Mexican Orange with its evergreen foliage and myriad heads of fragrant flowers, but possibly no one would think of it in the East. Mr. Furness reports that "it has come through four winters fresh and green with only the unripened growth killed back. It blooms early, in May I think, but has never fruited. The leaves are very aromatic and of a lovely shape and color. At its foot, in the foreground, is a young plant of *Viburnum davidi*, an evergreen viburnum with large glossy leaves, which have become tinged with wine color this autumn. It has not been through a winter, so I do not know how hardy it is."

This interesting shrub derives its name rather from the fragrant white flowers that resemble orange blossoms and from the fact that it is a native of Mexico, than from the fact that it belongs to the large order, Rutaceae, that includes the true oranges and their nearer relatives, an order represented in Eastern gardens by such herbs as rue and dictamnus, such shrubs as *skimmia*, *ptelea* and *xanthoxylum*, such trees as the oriental *evodia* and *phellodendron*.



Edgar T. Wherry

Sarcococca humile

A very useful and ornamental low-growing evergreen, particularly when planted in front of rhododendrons. It stands dense shade, even deciduous shrubs hanging over it. In fact, all summer this clump is lost under a big bush of myrica. In the autumn when the myrica sheds its leaves, the sarcococca shows out, fresh and green. It spreads easily by underground runners, but may also be propagated by seeds and cuttings

The Idealist in the Garden

This past summer has been a hard one on all phases of gardening but it has been especially severe upon rock-gardens, particularly those located, as mine is, in southern Jersey, where the sun is torrid and the nights none too cool. Between the heat of the sun and the absence of rain many plants that were heretofore of ironclad constitution gave up the ghost and passed into whatever state plants reach when they leave this earth. Probably the disaster would have been worse than it was had there been rain with the extreme heat. So we might be thankful that things were not worse than they were; and now that the holocaust is passed we can strive to assimilate what the experience can teach us.

First and foremost this past summer brings home to me the fact that Prof. Stephen F. Hamblin was right when he said that American rock gardens should be provided with more shade than they usually get. If we would but realize that the quality of full sunshine on the mountains is vastly different from that which we have on the lower levels we will begin to understand why these mountain plants need some shade in our rock gardens. From now on when I read in Farrer "Hottest situation" or when Correvon says "full sun" I shall understand that for us in America, at least south of New England, it means that some shade is required during the hottest part of the day. This was particularly brought home by the way *Papaver thibeticum* died out completely under the grilling it got from the sun. The ages of the plants varied from three-year old clumps to this year's seedlings. Yet in a neighbor's garden this year's seedlings which were planted where they got high shade after the middle of the day did splendidly.

To test out my new shade theory regarding *Papaver thibeticum*, I begged

some late-germinating seedlings from a friend and, in mid-August, planted these out where they were shaded during the hottest part of the day. They lived and flourished. I have come to the conclusion that to get *Papaver alpinum* to live through our summers it too must have shade from the midday sun, for the only ones which are still alive are those which I was able to protect by placing large, tall stones to the south of the plants. That part of the rock garden began to look like the often-referred-to "almond pudding" with all this garniture of rocks, but some of the poppies were saved, which was the most important thing.

For the last three years I have been trying to succeed with *Aster farreri*. The seed germinated readily enough but I could never get the plants to go on living after they were transplanted, until this year when I gave them the shade of elevated strawberry boxes throughout the month of August; I did not set them out until then. So far they are coming along nicely and as they have rather a heavy mulch of stone chips I am hoping for the best. We hear a great deal of stone chips used for drainage, for collars around choice plants to keep off the excess moisture in winter, for protection against slugs and snails whose crawling surface does not take kindly to the sharp and jaggy corners of the little bits of rock; but I can not recall of ever having read anything of their usefulness as a summer mulch to keep the ground cool and to conserve moisture.

Artemisia have always attracted me ever since I saw Reginald A. Malby's lovely picture of *A. vallesiaca* in his "Story of My Rock Garden." Of this species I know nothing except what the picture tells me, for the one time I had seedlings of it a catastrophe met them in infancy and they were no more. *Artemisia frigida* comes from Saskatchewan and is a lovely thing

looking like a fluffy icicle more than anything else that I can compare it to. The stem and a little of the midrib of the leaves are of a pale cool green and merge quickly into silver of a soft and gleaming purity that only an icicle describes. It grows from four to eighteen inches long, not high, for with me it is inclined to trail over the rocks in a most charming fashion. *A. glacialis* is a beauty of another type for it forms little hummocks of soft feathery silvery foliage, at the most but three inches high. I thought I was doing it a kindness this summer by nipping off its buds but by so doing nearly killed the plants; at least I blame this operation and not the hot sunshine of the past summer for their being nigh unto death as they eventually recovered and I hope to see them blooming next summer just as nature planned they should. Farrer seems to think that this is one of the few that are attractive in flower and says, "The stems are many, erect and about four or five inches high, carrying the little flowers of quite attractive bright yellow, not in a spike but in a dense head at the tip." As it comes from granite formations of the central and southern Alps we should avoid lime and that was another mistake I made with my first patch of seedlings. I had always gone on the supposition that all grey-leaved plants wanted or would stand lime in the soil, but here is one of the greyest of the grey which seemingly does not want it; at least now that they are on granite they are doing well.

What a godsend it would be if we had a book which merely listed all lime-loving and all acid-soil plants; I had hoped that Correvon's latest book would answer this purpose, at least with the rock plants, but, alas, it does not and we must still return to that bible of rock gardeners which Farrer wrote some ten years ago. *Artemisia mutellina* is new to my garden this year; so far it looks much like *A. glacialis* except that the foliage is longer and more finely cut into thread-like silver filigree and does not seem to

be as tight and compact as *A. glacialis*. It also comes from the Alps. Farrer lists some others, even more attractive, but I have not been able to get seed of them; *A. globularia*, a Russian, with purple flowers against the silvery foliage, *A. persica* and its subspecies *A. subspinescens*, both from Persia and forming "almost spiny mounds of silver."

My *A. glacialis* grows just in front of a small patch of *Viola gracilis* which is under the shade of a clear but soft pink Kurume azalea and so forms two lovely pictures, first with the pink of the azalea and later with the purple of the viola. The picture would be improved if the purple were in front of the silver and the silver against a dark green background. I am striving for this with *A. mutellina* which I have planted above and in back of *Aster alpinus* with *Chamaecyparis obtusa nana* beyond. *Berberis verruculosa* or *Cotoneaster adpressa* would also make a good and effective background for any of the dwarf grey artemisias with purple aubrietias or *Campanula garganica* or *Tulip hageri* in the foreground.

In regard to the Kurume azalea mentioned above I can not say too much in praise. I have several growing in full sun in my rock garden, and much to my surprise they are doing much better than those in shade. The sunshine of southern Jersey is a good hot sun too; yet one has stood it and thriven under it for the last five years. The soil is of course an acid soil and the first winter that each has been in the garden it has had a mulch of hemlock needles about its roots. They have a thin coating of humus spread over the ground about them every spring. Perhaps the fact that each is planted to the north of a granite block and so gets some shade around its roots has helped some, but the foliage is not shaded from early morning until late in the afternoon. They are most delightful shrubs to use in the rock garden, especially when the lighter and softer colored varieties are used

and the double or "hose-in-hose" kinds avoided. I do not understand why they are not used more unless it is that people think they are not hardy.

Another thing for winter meditation, at least with me, is how to get rid of ants when they infest the rock garden. After trying everything that was warranted to exterminate the pests I have found that carbon di-sulphide poured into the ant hole and then the hole plugged up with earth is about the surest means. But it is not a pleasant thing to handle and it also does a great deal of damage to plants if it is allowed to get upon the foliage, especially in sunshine. Through carelessness in this I lost several *sempervivums*, the foliage becoming cooked, my one plant of *Umbilicus pestalozzae*—more of this later—and a fine four-year-old *Hedera helix conglomerata*. The soil in which this last was growing was so honeycombed with ant tunnels that a great amount of the vile smelling stuff had to be used. The ivy's death might be attributed to the air passages through the soil or to the carbon di-sulphide at its roots as much as to the poison having gotten on its stem and leaves. So let me tell you immediately that when you see ants in your rock garden start at once to check their advance lest they undermine the whole place. They very wisely prefer the shelter which the rosettes of the *sempervivum* give them and under such a roof-tree they start their house—or rather I should say their tenement-house—keeping, and soon form a slum district the like of which no modern city ever experienced in the way of congested population. Even the hardy *sempervivum* eventually objects to having its roots used as stairways. It was with tears in my eyes and rage in my heart that I went after this most excellent example of industry of our childhood copybooks; and it is truly amazing what caverns these demons can make. Under one clump of dying *Sempervivum triste* I was able to ram down the earth in my attempt to repair the damage to a

distance of two feet and the hole I made had a diameter of full four inches. Would that some enterprising scientist got busy and produced a real exterminator which did no damage to soil or plant.

In the above paragraph I mentioned *Umbilicus pestalozzae*. Last winter a year ago in glancing through Farrer's English Rock Garden I happened upon this genus and after the manner of gardeners became interested at once. Correvon offers seed which was duly procured. Five species were planted—*U. chrysanthus*, *libanoticus*, *pestalozzae*, *semenowii* and *sempervivum*—and in due time they all came up. Now my gardening operations are hampered by the necessity of raising my seedlings in an apartment house window many miles away from the garden. When the seedlings are large enough to bear the trip they are packed and taken down to the garden. Naturally when I am at the garden the seedlings which have been left in the apartment suffer and when those planted in the garden are left by my having to return to the apartment—suffer in their turn. Under these conditions it is a wonder that any live and so it is not surprising that of the five species of *umbilicus* only one pulled through; one plant of *U. pestalozzae* and that was the one which the ants and the carbon di-sulphide got this summer. Fortunately it began to die at the base and I was able to make some few cuttings from the tips of several of the stems which have rooted and are still living. This year's seedlings have given me several *U. sempervivum* (Correvon lists it as *U. sempervivoides*) and one *U. chrysanthus*. From the little I know of them they are an interesting lot.

They all demand perfect drainage in light soil—as to lime I can not say—and demand the full sun, growing naturally upon dry hot rocks. Truly; as Farrer says, they are between sedum and *sempervivum*. The three I am growing look like three intermediate hybrids between those two genera.

U. sempervivum forms minute rosettes not unlike a very small form of *Sempervivum montanum* except that its leaves are blunter, fatter and more spoon-shaped and are a deeper green. Farrer says that the flowers are purplish and are "borne in a sprayed shower in one-sided rows along the sprays." This I have yet to see; next summer I can tell more about the bloom. Further in the direction of a sedum comes *U. pestalozzae*, for its rosettes are looser, more open, but it branches much in the same way of *Sempervivum haworthii*, only without the supporting roots and on a much smaller scale, for it grows no higher than a scant three inches though its flower stems are said to reach five. The fat little flattish leaves have a bluish opalescent tinge which compels admiration from even the casual gardener. The flowers are said to be pale pink and fairly large and, if a good clear pink, I imagine they must be charming with such lovely foliage. Still nearer to the sedums comes *U. chrysanthus*, for mine reminds me of *Sedum hirsutum* var. *baeticum* in spite of Farrer's comparing it with *Sempervivum gaudini*, for its leaves of good bright green and very hairy surface are strung out along a stem and not in any sense are they in a rosette such as we find in the sempervivum tribe. True, the tip looks like a rosette and the older leaves are close together with very short spaces between, but the stem is there and, when it does not lop over, grows to the height of six inches or more. Again I must refer to Farrer for the description of the flower: "ample starry flowers of soft yellow, rayed with red." So far I have found these plants to possess great charm and look forward to little colonies of them in the rocks. Would that seed of other species could be got, for several more sound especially desirable.

For the past several years I have been particularly interested in dwarf iris and have been attempting to get as many of them as my small place will hold. This year a new plant of

Iris pumila caerulea bloomed and proved that there is more than a bit of difference between it and the variety *azurea* which I have had for some time but under the name of the former. The true *caerulea* is not only a little bluer than *azurea* but is not quite as tall; as though to prove to me that they were both different they both set seed. The true *caerulea* shows that it has more pumila blood by ripening its seedpod low in the foliage with hardly any stem while the *azurea* sends up its pod on a stem some three inches high in the manner of the species *chamaeiris*. Also the foliage in October shows a great amount of difference in that the leaves of *caerulea* are scant and short, barely three inches, after the manner of a true pumila while that of *azurea* is six inches or more and quite heavy as though it intended growing on through the winter, as we might expect from a plant coming from the south of France as *I. chamaeiris* does. Of course Dykes has said all this before, except that I do not remember that he ever had seedpods ripen so that he could compare them as well as the flower.

While speaking of irises I should like to add another one to the list that bloom in the autumn. I am almost sure to have an autumn display of *I. lurida* and sometimes have had a heavy bloom from *lutescens statellae*, both blooming in late October or November. But this year during the third week in September the dwarf iris "Die Fee" broke into flower. I wonder if this variety makes a habit of doing so for it is only the second season that I have had it. I was not particularly keen about it in the spring but if it is going to pay double rent for the ground it lives on it will go up in my estimation. I am wondering if it can have any blood of *I. subbiflora* or whatever the dark purple low growing Portuguese iris is now called, for "Die Fee" is one-flowered as is *I. subbiflora*. Does any one who reads this grow the species or know where I can get it?

The Sempervivums—Les Joubarbes

By HENRI CORREVEON

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(Continued from page 201)

Section CHRYSANTHAE.

Yellow flowers with 10–14 stamens:
Type, *S. WULFENI*.

S. ALBIDUM Lehm. & Schnittsp. (Flora
XXXVIII, 1855, p. 4.)

Large rosettes, deep green, with oval lanceolate leaves, narrowed to the base, stem leaves oblong, short acuminate to a rose colored point, almost glabrous; stalks 15–18 cm., downy; stolons 3–8 cm. in length; panicle lax, subdivided; petals narrow lanceolate and long acuminate, yellowish white with a purple blotch at the base, two and one-half times longer than the calyx. It is related to *ZELEBORI* in its foliage but differs in its flowering.

Origin unknown, probably western Europe; it was sent to the author from the Botanic Garden of Heidelberg in 1854. We received it from Van Houtte in 1884, from Prague in 1890, from Haage & Schmidt in 1904, and the Paris Museum in 1908.

S. ARMENUM Boiss. & Ruet, Walp.
Ann. VII, p. 923.

S. globiferum Boiss., Fl. Or. II,
p. 797.

Rosettes large, with oblong-spatulate leaves, sharply acuminate to an acute point, glabrous on both faces, ciliate on the margins; stalks 25–30 cm.; flowers yellow; petals narrow, linear-lanceolate, attenuate toward the tip, downy-glandular, exceeding the reddish sepals two and one-half times.

Rocks of Armenia, near Kassakea, Amasia. We received it in August, 1889, from Ak-Dagh near Amasia, but we have not saved it.

S. BRAUNII Funk, Sturm. Deutsch, Flora, XI, 67, pl. color; Koch Syn., p. 263; Lehmann & Schnittsp. Flora, 1855, p. 7. See *S. Tectorum* Eichn.

Rosettes medium size; leaves of a brilliant green, convex on both surfaces, recurved and imbricated, with angles obtuse, glandular-pubescent; stalks 10–12 cm.; panicles weak; flowers clear yellow; petals narrow, twice as long as the sepals.

Tyrol, Carinthia, Alps of Grisons at 1,800–2,500 m. altitude on granite. Received from the Botanic Garden of Laybach in 1893 (as seeds) and in 1894 (as plants); from the Botanic Garden of Brunswick (seeds) in 1895; from the Botanic Garden at Erlangen (seeds) in 1897, and from Haage & Schmidt in 1904.

S. campaniforme Schur., Enum. Pl.
Trans.. 229. See *S. GLOBIFERUM* L.

S. cappadocicum Boiss., Flor. Or. II,
p. 797. See *S. GLOBIFERUM* L.

S. CHRISTII Wolf.
S. ciliosum Panc.

A white-flowered form of *S. GAUDINI* found in the valley of Cogne (Graian Alps). In the Alps at Chavanis (Cogne) the cliffs are entirely covered with *S. GAUDINI* which varies in its coloring and hybridizes with related species. Is one able to count these variations from a botanical point of view?

I have gathered it at Chavanis, Champorcher, and the Valley of Tourmanche.

S. CILIATUM Schur., Black and white fig.; Farrer, English Rock Gard., II, p. 349.

Rosettes of moderate size (3.5 cm. in diameter); leaves oblong-lanceolate, larger at the tip than at the base, downy-glandular on both faces, very strongly ciliate with hairs 4-5 mm. long; stalks to 10 cm., furnished with leaves tipped red on the reverse and downy-glandular; flowers in panicles ending in branches 4-5 cm. long, downy-glandular; petals pale yellow, exceeding the sepals.

Balkans. We received it in 1892 from the Belvédère at Vienna, in 1895 from the Laybach Botanic Garden, in 1896 from Defregger at Kufstein, in 1897 from the Botanic Garden at Belgrade, and the same year from Czar Ferdinand of Bulgaria, who had found it at Mont Rilo (Balkans).

S. CILIATUM var. *RUBRUM* Hort.

A *CILIATUM* with very small rosettes and leaves brownish on the reverse. Received from M. Pauli in 1921.

S. ciliosum Panc. See *S. CHRISTII* Wolf.

S. GAUDINI Christ, Neue Denk. Schw. Ges., 1867.

S. grandiflorum Haw.

A very distinct plant and well marked yet not recognized for a long time. Professor Vaccari has given its history in a paper well authenticated. (Prof. L. Vaccari: II. *S. gaudini* e la sua distribuzione nelle Alpi.—Annali di Bot., Prof. Pirotta, Vol. III, fasc. 2).

Long confounded with *WULFENI*, this species differs markedly; it resembles *WULFENI*, *BRAUNII*, *GLOBIFERUM*, and *MONTANUM* all at the same time! It is glandular-pubescent in all its parts, diffusing a strong odor of resin or of juniper. Rosettes of medium size, 5-6 cm. in diameter; leaves thick, viscid, spatulate-cuneiform, sharply contracted to a short point often with a noticeable spinelike tip

stained with brown; stem-leaves oblong-lanceolate, somewhat more glandular, furnished with nearly gelatinous hairs along the margins and usually brownish-red at the tip; stalks 20-30 cm. (on the roofs and walls of Valtournanche, it sometimes reaches even greater dimensions); flowers large and brilliant, of a clear, shining yellow (4-5 cm. in diameter), arranged in compact panicles; corollas 12-18 parted, blotched at the base of the petals, which are three times as long as the sepals; stamens with glabrous violet-colored filaments.

This superb species belongs to a flora preferring silica; I have never found it on limestone. It grows in the Alps in the Valley of the Aoste on the right and left banks (Cogne, Champorcher, Valtournanche, etc.) from one end to the other, in the valleys of the Suze, the Stura, Campiglia, Anzasca, etc. On the northern slopes of the Alps, it is known at Zurischberg to the south of Mont Simphon. In 1887 it was discovered by Mme. Julia Correvon above Liddes, in the Valley of Entremont (Valais), where it formed an isolated colony that many authorities have verified in their turn. I led to it Dr. H. Christ himself, who was greatly astonished. I ask, however, if the *S. GLOBIFERUM* indicated by Canon Favre above the chalet of Menouve (Bull. Soc. Murith., IV, p. 55) is not our *GAUDINI*, which would make an intermediate station, relating that of Liddes to the Valley of Aoste.

This beautiful and aromatic plant that we cultivate easily at Floraire, even on limestone, is a fine ornament of rockwork, walls, and roofs. It has been published under a great number of synonyms: *globiferum*, *hirtum*, *grandiflorum*, *wulfeni*, *braunii*, etc. As I have said before, it hybridizes with great facility and varies to such a point that there are stations where one has trouble to find the pure type.

S. globiferum Boiss. See *S. ARMENUM* Boiss. & Huet.



Michael Carron

Sempervivum fimbriatum and atrovioleaceum



Michael Carron

*Contrasting forms—calcareum, soboliferum, tectorum and an unnamed dark form
with narrow leaves*

S. GLOBIFERUM Linn., Koch. Bot. Zeit. XVIII, p. 210, tab. 1; Lehmann & Schnittsp., Flora, 1885, p. 6; pl. col; Bot. Mag. tab. 507.

S. cappadocicum Boiss. See *S. hirtum* Jacq., *S. soboliferum* Sims, *S. campaniforme* Schur.

Globular rosettes, rather large (4.5-5 cm. in diameter) with incurved leaves, obovate-cuneiform, short acuminate, long-ciliate; stalks 10-15 cm.; many-flowered corymbs with short branches; flowers clear yellow in rather spreading stars; petals 15-20) 3 or 4 times as long as the sepals, linear-lanceolate, acuminate.

Orient, Caucasus, Southern and Central Russia. Received from the Belvédère in Vienna in 1888, from Prague in 1889, from Warna, where M. Bornmuller discovered it at 100 m. on gypsum, in 1889, the Botanic Garden of Belgrade in 1891, from the botanist Baldacchi, at Montenegro in 1891, from Dufregger in 1895, from the Botanic Garden at Brunswick in 1895, from the Botanic Garden of Bonn (as seeds) in 1895, from Czar Ferdinand of Bulgaria in 1896, from the Botanic Garden of Tiflis in 1914.

S. globiferum Wulf. See *S. WULFENI* Hoppe.

S. grandiflorum Haw., Bot Mag. tab. 2115. See *S. GAUDINI* Christ.

S. hirtum Jacq., Flor. Austr. I, 10, tab. 12. See *S. GLOBIFERUM* L.

S. LEUCANTHUM Panc., Elém. Fl. Bulg., 30.

A Balkan form of *TECTORUM*, with rather small rosettes and white flowers slightly flushed with yellow. Published by Pancic, without description.

We received it in 1910 from Kesselring.

S. PITTONII Schott, Nym. & Kotschy. Analecta, p. 19.

This is a reduced *S. GAUDINI* with always patulous rosettes; leaves obo-

vate, with a blackish spot on their tips; flowers small; petals linear-lanceolate, clear yellow.

A rare plant that grows on the serpentine rocks of Kranbak in Styria. We received it from Prague in 1889, from Père Porta, on Lac de Garde in 1893, from the botanist Treffer (Tyrol) in 1894, from Tottenham (Holland) in 1895, from Kesselring in 1911 and from Vilmorin in 1924.

S. RUPICOLUM Kern., Oestr. Bot. Wochenbl. 1870, p. 285.

A plant of grayish appearance; rosettes of medium size; leaves pubescent, villous only on under surface; stalks, 15 cm.; stem-leaves reddish beneath; corymbs trifurcate; flowers of a greenish yellow striped with rose; petals three times as long as the calyx, narrow-elongate.

Slaty schists in the Tyrol. Received from Defregger at Kufstein in 1895, from the Botanic Garden at Innsbruck in 1896, the Botanic Garden at Geissen in 1904, and from Kesselring in 1911.

S. RUTHENICUM Lehm. & Schnittsp., Flora, XXXVIII, 1855, p. 5.
S. wulfeni Hort.

Rosettes large; leaves deep green, rarely brown at the tips; stolons strong, 2.5-5 cm. in length; panicles with raceme; flowers bright yellow; petals linear-lanceolate, two or three times as long as the sepals. Related to *wulfeni* from which it differs in its somewhat pubescent leaves.

Transylvania, Turkey, Asia Minor, South East Russia. Received from the Botanic Garden at Halle in 1895 under the name of *ruthenicum* Hort and from Kesselring in 1911.

S. soboliferum Sims, Bot. Mag. tab. 1457. See *S. GLOBIFERUM* L.

S. tectorum Eichw., Besch. Casp. Cauc. 31. See *S. BRAUNII* Funk.

S. TRANSYLVANICUM Baker, Gard. Chron., 1874, II, p. 104.

A Transylvanian form of *S. ciliatum*.

S. wulfeni Hoppe, Koch, Syn. Ed. I, p. 262; Pl. Col. Jacquin, Fl. Aust., tab. 40; Sturm, Deutsch. Flor. VI, tab. 23; Correvon, Atlas Flore Alpine, pl. 184, not accurate. See *S. globiferum* Wulf.

Rosettes large (5-6 cm. in diameter), glaucous, red toward the center; leaves glabrous above, ciliate on the margins, obovate-lanceolate, long-acuminate; stalks 10-25 cm., pubescent-glandular; flowers yellow; petals two to three times as long as the sepals, narrow-lanceolate, with brown hairs.

Western Alps, Grisons to Styria, at between 1,500-2,600 m. altitude on granite. It hybridizes with such freedom that at Val Faene, for example (Bernina), one finds more hybrids than examples of the pure species. We received it from Boissier in 1878, from Zurich and Laybach in 1895. We have collected it many times in the Alps of Grisons and Triente.

S. wulfeni Hort. See *S. ruthenicum* Lehm. & Schnittsp.

S. zeleborei Schott, Oestr. Bot. Wochnbl., VII, 1857, p. 245.

A species very closely related to *ruthenicum*, with pale yellowish-rose flowers.

Serbia, the Balkans. Received in 1890 from the Botanic Garden at Brunswick, in 1894 from that of Breslau, in 1895 from that of Bremen, in 1897 from Belgrade, in 1899 from Dr. Dieck, and in 1912 from the Botanic Garden at Geneva.

SUBGENUS II: *Diopogon*.

Flowers yellow, 6-parted, petals erect, forming a bell-like tube, laciniate in their margins.

S. allionii Nym. Consp., p. 260.

Diopogon allionii Jord. & Fourr., Brev. Pl. Nov., fasc. II, p. 46; Icones, tab. 131.

This is a plant related to *S. hirtum* of which Burnat (Flore Alpes-Mar.,

p. 288) makes it a variety. It differs from the type in the pubescent-glandular leaves of the rosette, in its yellowish-green color.

I discovered this species in August, 1905, growing in great abundance above Campiglia-Canavese (Graian Alps). (See Supp. Fl. Alpes-Maritimes, Vol. IV, p. 286) when it was not known to exist in that region. Later, however, Vaccari, then Wilczek and finally Lanza confirmed its presence and extended the area of its distribution. It belongs chiefly to the Alps of Upper Italy (Piedmont, Lombardy, etc.)

S. arenarium Koch, Syn. Fl. Germ. Ed. I, 1883; Lehm. & Schnittsp. Flora, 1885, p. 23; Sturm, Deutsch. Flor. XIX, tab. 83; Schott, Anal, p. 19; Fig. color in Seeboth. Alpen Flora, pl. 97. The figure in the Garden (Mar. 21, 1896) is incorrect.

S. cornutum Hort.

S. hirtellum, Schott

S. kochii Face.

Plant dwarf and caespitose with small rosettes of a light green, reddish on the back, bearing on their surface bulbils which when large enough become the rosettes that they carry on their flanks in the fashion of a kangaroo carrying her young and which, becoming heavy enough, fall off at the foot of the plant and multiply indefinitely; leaves glabrous, slightly ciliate on the margin, 2-5 broad, lanceolate, contracted at the tip; stem-leaves downy on both surfaces and ciliate on the margin; stalks up to 15-20 cm.; flowers citron-yellow, large; petals elegantly laciniate.

Tyrol and Carinthia, on granitic Alps, between 1,000 and 1,500 m. altitude. Received from the Paris Museum in 1884, from Tottenham (Holland) in 1895, from the Botanic Garden at Brunswick in 1895.

S. austriacum Jord. & Fourr., Nym. Consp. 260.

This doubtful plant appears in all collections. I have searched in vain

for the authors' description. They have only mentioned it and it is evidently one of Jordan's forms of *HIRTUM*. The type which I received long ago from the Botanic Garden at Geneva came from Jordan's garden and seems to be a simple form with rosettes perhaps more spreading than in the type.

S. brassii Hort. Bot. Wign. See *S. PATENS* Griseb. & Schenk.

S. cornutum Hort. See *S. ARENARIUM* Koch.

S. HEUFFELI Schott, Oestr. Bot. Wochenbl., III, 1853, p. 83.

Diopogon heuffelii, Jord & Fourr., Brev. Pl. Nov., fasc. II, p. 46.

Rosettes large (3-5 cm. in diameter), when young, sessile; leaves obovate-cuneiform, distinctly cuspidate, glabrous on both faces, pale green toward the base, a beautiful red toward the upper part; stem-leaves falcate, imbricate, somewhat perfoliate, short ciliate on the margin and somewhat glandular pubescent on the faces; stalks 10-18 cm.; corymbs dense, divided into 6 or 7 short revolute branches, 1-1.5 cm. long; flowers very light yellow, petals linear-oblong, fully once again as long as the sepals.

Alps in Transylvania, the Balkans. Received from Paris in 1884, from Tottenham (Holland) in 1895, from the Botanic Garden in Brunswick, 1895, and from Czar Ferdinand of Bulgaria in 1902.

S. HILDEBRANDTHI Schott, Oestr. Bot. Wochenbl., III, p. 83.

Very closely related to *NEILREICHII* from which it is distinguished by its broader leaves and its yellow petals, more finely lacinate and more intensely pubescent.

Stryian Alps, on Serpentine rocks. Received from Belvédère in Vienna in 1889, and from Kesselring in 1911.

S. hirtellum Schott (Verh. Siebenb. Ver. Naturw., 1857, p. 171. See *S. ARENARIUM* Koch.

S. HIRTUM Linn., Lehm. & Schnittsp. Flora, 1852, p. 21. Fig. color; de Candolle, plantes grasses, tab. 107; Jord. & Fourr., Icon. pl. 131; Allioni, Pl. ped. vol. II, p. 175, tab. 35; Correvon, Atlas Flore Alpine, pl. 182; Seeboth, Fl. Alp., pl. 34.

S. soboliferum Fleisch. & Lindem.

Plant forming spreading tufts on the soil where it often covers large areas; rosettes 7.5-8 cm. in diameter, the young not rolled up like a ball nor supported on the sides of their parents, as is the case with *arenarium* and *soboliferum*; the outer leaves somewhat tinted with red (1-1.5 cm. broad), the others yellow-green, glabrous when adult but slightly villous when young; stem-leaves oblong-lanceolate, acute, covered with hairs; stalks 10-20 cm., entirely covered with hairs; flowers light yellow; petals ending in a point with a terminal lanceolate tooth, the margins more or less lacinate, once again as long as the sepals.

Stony meadows and rocky slopes of the Lower Alps, the Maritime Alps, the Western Pyrenees, northern Italy, and the Western Alps. Received from the Botanic Garden at Laybach in 1894 and 1895, from the Paris Museum in 1895. I have found it in the Maritime Alps (in the region of Tende), in the northern Valley of Cairos, Valley Boréon, at Madone de Fenêtre, above Saint Martin de Vésubie and Saint-Etienne de Tinée, above the baths of Valdier, on Mount Mounier, and particularly on the gorges of Cians where, on the left bank, it covers vast spaces.

S. hirtum Sibth. & Sm., Flora Graec. Prod. I, 334. See *S. PATENS* Griseb. & Schenk.

S. kochii Facè. Zeit. Ferd. Tyrol, 1854, p. 57. See *S. ARENARIUM* Koch.

S. KOPAONIKENSE Panc., Flor. Princ. Serb., 1874, p. 314.

Very close to *REGINAE-AMALIAE*, from which it is distinguished by its larger dimensions and its leaves, red in color and somewhat transparent.

S. NEILREICHII Schott, Nym. & Kotschy, Anal. p. 19.

Related to *ARENARIUM*, from which it is distinguished by its lanceolate leaves, those of the stalk glabrous and ciliate on the margins, its petals downy on the back and very finely fringed on the margins.

S. PATENS Griseb. & Schenk., Wiegmann. Arch. XVIII, 1852, I, 315, Fig. col.; Garten Flora tab. 858. See *S. brassaii* Hort.

Related to *HEUFFELII* Schott. Rosettes large; leaves somewhat downy, margins with numerous hairs, sharply long-cuspidate; stem-leaves oblong-lanceolate, acuminate, somewhat clasping; stalk 28-30 cm.; corymbs dense, with 5 branches bearing 12-15 flowers; petals yellow, linear-oblong, enlarged toward the tip and mucronate, one and one-half times longer than the calyx.

Balkans, Transylvania, Banat, Orient. Received in 1902 from the botanist Baldacci (Monténégro), in 1892 from Czar Ferdinand of Bulgaria, in 1895 from Mont Athos and the Botanic Garden at Brunswick (as seed), in 1896 from Sundermann, in 1904 from Haage & Schmidt, and in 1908 from the botanist Stribny at Philippopoli.

S. PATENS var. *GLAUCUM* Hort.

A glaucous form of the type that we received from Kesselring in 1898.

S. REGINAE-AMALIAE Heldr. & Sart., Baker, Gard. Chron., 1877, p. 230; idem, 1879, II, p. 428, ex Boissier, Fl. Orient, II, 796.

A species closely related to *PATENS* and *HEUFFELII*. It is considered by Boissier as a synonym of *TECTORUM*. We consider this species a *Diopogon*. Rosettes flattened (3-5 cm. in diameter); leaves green-glaucous-reddish; stem-leaves falcate, slightly imbricate, less numerous than in *HEUFFELII*, the outer leaves reddish, the inner very slightly glandular-tomentose; stalks 20-25 cm., corymbs lax with 5 scorpioid

branches each bearing 10-12 flowers; corolla yellow tinted with rose; petals very short, broader and longer than the sepals.

Greece and Balkan Provinces. Received from the Paris Museum in 1884, from the Botanic Garden at Jena (as seed) in 1890, and from Czar Ferdinand of Bulgaria in 1902.

S. soboliferum Fleisch & Lindem. See *S. HIRTUM* L.

S. SOBOLIFERUM Heldr. & Sart., Flora 1855, p. 22; Fig. col.; Bot. Mag. tab. 1457; Reichb. Ic. crit. tab. 839; Jacq. Flor Austr. tab. 12.

This is a diminutive *HIRTUM* with small rosettes; obovate or long spatulate leaves; those of the lower stem elongate and acuminate, the upper ones oval, glabrous on the two faces, ciliate on the margins; flowers campanulate, bright yellow, with petals twice as long as the sepals. The characteristic feature of this plant is that it, like *arenarium*, sends out a quantity of small, glandular buds which become rosettes that remain attached to their parent until the moment of maturity when they roll away from the mother plant. It is distinct from *ARENARIUM* in the obovate-lanceolate leaves of the rosettes (lanceolate, and for the most part acuminate in *ARENARIUM*) and its corolla once longer than the sepals (twice longer in *ARENARIUM*).

It rarely flowers and grows on the slopes of the pine groves on the rocks and sandy hills of Poland and Czechoslovakia. Received in 1888 from the Paris Museum; in 1895 from Van Houtte & Defregger; in 1896 from the Botanic Garden of Brunswick (as seed); and in 1900 from the Botanic Garden at Geneva.

S. STRAMINEUM Baker, Gard. Chron., 1874, II, p. 104.

Diopogon stramineum Jord. & Fourt., Icon. fig. 103.

Very close to *HEUFFELII*, but with leaves smaller, green and glossy.

[To be concluded]



Pearl Heath Frazer

Artemesia and New England Asters

Roosevelt Cabin—IV

By FANNIE M. HEATH

I did not make my usual fall trip to Roosevelt Cabin this year so will just have to use my mind's eyes to picture for you just how beautiful the grounds really were, or perhaps the little picture of a single plant of our North Dakota *Novae-Angliae* asters will do it better. North Dakota is rich in the many beautiful varieties of both asters and goldenrods and it always seems to me that ours have more blossoms to each plant than the same varieties from the farther east and south. Another interesting thing about them is that the farther north they are native, the earlier they blossom. Those that I have found growing

wild here start blooming the latter part of July and are in full bloom by the middle of August, while plants from five hundred miles farther south and growing in the same bed will continue to blossom year after year about two weeks later. Other plants from southern Massachusetts wait until the latter part of September before opening their first flowers and are in full bloom about mid-October, a full two months later than ours. Thus by getting plants from different sections we can have the portions of the grounds devoted to these plants giving splendid results over a very long time. It is the same with the goldenrods.

To your left as you enter the grounds is a border about seven feet wide and seventy feet long that was a billowy sea of white and blue and purple and gold. One lady that has traveled much said it was the most beautiful sight she had ever seen. I can easily imagine that it was for I have such a border in my own garden except that I omitted the gold and planted lavender asters instead and I received many compliments on its beauty.

Besides the New England asters we have *A. sagittifolius* or Wood Aster. This comes in a pretty shade of blue and does equally well in either sun or shade; grows from two to three feet high. *A. oblongifolius* is about the same height and ranges in color from delicate pink to lavender, blue, and a deep purple. It is a very free bloomer and is lovely in the large rock garden. *A. puniceus* grows to five or six feet, is of a pale blue, the whole plant covered with silky, silvery hairs. It is the least attractive of any of our asters. No, I will take that all back for *paniculatus*, *pauciflorus*, *salicifolius*, *longifolius*, and *juncus* are all less attractive and besides are such fierce root spreaders and so difficult to keep within bounds that we are now trying to eradicate them. *A. puniceus* at least does not sucker. *A. plarimicoides*, the Upland Aster, is a good little plant as it blooms very early, does not spread, but makes nice little clumps, revels in a dry sunny location, and gives abundantly of its $\frac{3}{4}$ -inch wide, white blossoms for several weeks. *A. multiflorus* and its variety *commutatus* both add much to their particular place when rightly placed. *Commutatus* is especially good as the foliage is very pleasing even when the plant is not giving forth its wealth of small white flowers. I have found it also in a very pale pink, also blue-tinged forms. *A. sericeus*, the Silky Aster, is always charming with fine wiry stems, so small as to be almost invisible from a short distance. But best of all is *A. laevis*, the Smooth Aster. This usually is sky blue, but at

times a dark blue and also lavender ones are found. It is our most effective standby, forming huge clumps five feet high and four feet across. We have asters scattered about the entire grounds wherever flowers are growing and several fine clumps at the south end of the Cabin. Here they show up very nicely against the silvery gray foliage of a large clump of buffalo berries (*Shepherdia argentea*). This has bright red berries and holds both fruit and foliage very late in the season and has more of the silvery color to its foliage than *canadensis*, which has less showy fruit, being a pale yellow. The fruit of both varieties makes very nice jelly and is borne abundantly.

Chrysopsis villosa has aster-like blooms and is called the Golden Aster. It combines nicely with the asters and furnishes the gold in some plantings. *Sideranthus spinulosa* is another handsome, splendid, yellow-flowered plant, with inch-wide, lemon yellow, aster-like blooms, and finely cut silvery white, very stiff foliage and stems that where growing in dry exposed places will be so completely covered with blossoms as to earn for it the name of Biscuit Plant, as the plants are so compact they really make very nice looking biscuits, and depending on soil and moisture, will be from six inches to a foot through. It is splendid as a rock garden plant.

Another desirable late bloomer is *Gutierrezia sarothra* or Broom Plant. This has very narrow, dark green leaves and blossoms much like a goldenrod. It, too, makes fine biscuits of a deeper shade of yellow.

A little to the northeast of the Cabin is a wonderful clump of *Silphium perfoliatum* or Indiacup Plant. Those who have seen this plant growing only in the wild where it had to battle its way against surrounding weeds can hardly realize what a splendid showing it will make when given a chance. The huge square stems, fully an inch through at the base and growing eight feet high and well branched, each bearing its large golden, three to four-



Pearl Heath Fraser

Blazing star—Liatris scariosa

inch wide flower heads, is a splendid sight indeed.

Liatris scariosa is doing its bit to make the fall display good. There is much variation in these plants, so much that the late Dr. Lunell separated it into nineteen varieties. This seems quite a bit overdrawn as some of these varieties fail to hold a certain form when brought under cultivation, yet try as you may, some of them will refuse to increase their number of flower heads regardless of how well cultivated. So for years I have been collecting the corms of the plants that showed the greatest number in the wild. These have been allowed to produce seedlings, and by selecting the best of these I now have plants throwing as many as six flower stalks and have counted as many as one hundred and seven flower heads to a single stem. They are a pretty shade of rose purple and combine nicely with the whitish gray of our various artemisias or sages as they are commonly called.

Liatris punctata or *laciniaria*, as they are more commonly called in the West, deserves to be better known for this is a much darker shade of purple and a single corm will have at times as many as twenty of the short, six to eighteen-inch stems, depending on soil and moisture, and be robed three-fourths their length in narrow flower heads and long, narrow leaves. I have never found a soil or situation where they will not grow but they are best in full sun and rather poor, sandy soil.

Our three varieties of perennial Gentians, *andrewsii*, *affinis*, and *puberula* were all making a good growth in the spring. Our North Dakota Closed Gentian is quite different from the eastern form, so different that Dr. Lunell adds, var. *dakotica*. No, it was A. Nels that first gave it that name. I am not botanist enough to tell the exact difference but I do know ours has a much darker stalk and much narrower flower guard leaves. It, too, has the earlier blooming habit, as Mr. Lown of Poughkeepsie, N. Y., to whom

I had sent plants said, "Your *Gentiana andrewsii* was through blooming and had ripened its seeds before our New York one was even in blossom." I have had this same report from a number of others, including Frank W. Campbell, Director of the American Horticultural Society. *Gentiana affinis* is a delightful dwarf early variety that is in full bloom by mid-August.

Having charge of the Roosevelt cabin garden where the soil is so different from my own garden soil has given me a wonderful chance to note the effect soils have on some plants. Many plants that flourish in my garden's alkali soil have refused to grow at all here where the soil is very fine grained and somewhat sandy and must be somewhat acid as well.

Polygonatum commutatum (our giant Solomon's Seal) that grows fully seven feet tall and forms splendid colonies in my garden has refused to grow at all here even though I have taken fine well rooted clumps and given the best of care. They grew only about two feet the first year and did not winter. On the other hand, *Arctostaphylos uva-ursi* or Bearberry that is supposed to demand an acid soil is growing equally well in both gardens. In my own it is growing in soil so alkaline that it will foam up an inch or more when I pour vinegar on it. I have found vinegar the very best agent of all to counteract alkali, and since I have been using it I am succeeding in growing many plants that had refused repeatedly to establish before, including such plants as *Euonymus atropurpurea*, Trailing Arbutus, and a number of others.

All our four varieties of wild roses, *acicularis*, *pratincola*, *woodsii*, and *blanda* are splendid in winter as they produce such quantities of dark red to bright scarlet fruit or hips and the bark, too, especially of *blanda*, rivals even the dogwoods in brilliant coloration, and being entirely hardy anywhere enables the fortunate possessor to enjoy them throughout the entire year.

A Book or Two

The Herb Garden, by Frances A. Bardswell. The Macmillan Company, New York (for A. & C. Black, Ltd., London), 1930. 173 pages, illustrated. \$3.00.

There lately has been a new interest in the age-old subjects of herbs.

In England, land of supreme horticulture, there are many excellent books treating of herbs from every possible point of view. There is Eleanor Rhode's "A Garden of Herbs," excellent from the literary angle, Dr. Fernie's "Herbal Simples," from the medicinal approach, Mrs. Leyel's "The Magic of Herbs," from the anthropological; and finally from the cook's point of view, there is Boulestin and Hill's "Herb Salads and Seasonings."

This is the second edition of Mrs. Bardswell's book and hers has a place in our series as it is written from the point of view of the gardener. The illustrations are inspiring and suggestive, but in a book so charmingly gotten up it is a pity that there should be so much confusion in the classification. "Hardy" and "tender" as applied to annual and perennial pot herbs are at best local distinctions. Some herbs, such as dill and caraway, although listed as biennial, when grown in America set seed the first season. In Mrs. Bardswell's book, the same herbs appear under several headings, which adds to the confusion, and in it also are many herbs included for no special reason except that they have pretty names.

In writing an herb book there is always the temptation to rely too much on secondary sources, for the old herbalists are so intriguing; but Mrs. Bardswell gives just enough of past and family connections to present a gossip and amusing text and still show clearly that she has grown the herbs and knows them personally as well.

The book is written, however, from her experiences in a British garden where the long summer twilights are dampened by sea breezes and warmed by the Gulf Stream, conditions so entirely different from our arctic winters and tropic summers that the directions for growing and seeding can not apply to us in America.

HELEN M. FOX.

The Cactus Book, by A. D. Houghton. The Macmillan Company, New York, 1930. 148 pages, illustrated. \$2.25.

At the present time when there is such an urge for cactus in all parts of the country, one welcomes a small handbook that may serve for the uninitiated who have suddenly acquired a spiny pot or two.

One has the uncomfortable and a possibly disappointed feeling in reading the text that the author would have done better had his book been longer. The chapters are very brief and seem ill at ease. The information is there in most cases, but one feels that much more could have been given to the great advantage of the reader from the author's store. The present reviewer would have been delighted to have had smaller print and more matter, so that what is there might have been more developed and less abrupt in its presentation.

Like all such handbooks, this one contains the inevitable chapters on propagation and on the description of the divisions of the large and varied family, followed by chapters on care out of doors for the coast and indoors for the rest of us. The final table with its forbidding array of symbols probably contains more information than the rest of the book.

There are numerous illustrations, many of them lovely and persuasive of the charms of the cactus, others quite indifferent.

Plant Hunting on the Edge of the World,
By F. Kingdon Ward. Victor
Gollancz, Ltd., London, England,
1930.

One is always of two minds in reporting on a book of this sort. Packed from cover to cover with the most entertaining reading, it tells of plants coming back to England from places and climates so different from anything that we have here, that it seems the most tantalizing of books. As a book of travel, it will interest only the gardener who is a lover of nature as well; as a book of plant introduction and exploring, it will intrigue every one. The lists of plants that Mr. Ward has brought and sent back are recorded at the end of the text and one reads the lists of primulas and rhododendrons with an envious eye. Read it by all means and then go to and be a better gardener with what you can have!

Gentes Herbarum, by L. H. Bailey.
Vol. II, Fasc. IV Varia. October,
1930. Vol. II, Fasc. V Brassicæ
Cultorum. Dec. 1930.

The first contains discussions of various points about such widely differing subjects as: Several arrangements of names necessitated by recent studies; three discussions in Cucurbitaceæ; the binomials of certain palms; South American novelties, of which the last two are more interesting

to the gardener reading these technical papers.

The second contains reports on cultivated Brassicas (coleworts and mustards) gathered since the publication of the last paper in 1922. The plants themselves, aside from cauliflower, kohlrabi, rutabaga, turnip, and possibly pe-tsai are unfamiliar to gardeners who know of the rest perhaps, but little more than that.

Hortus, by L. H. Bailey and Ethel Zoe Bailey. The Macmillan Company, New York, 1930. 653 pages, illustrated. \$10.00.

"This is a ready reference book for all who have occasion to use brief information about plants." The quotation is as near a review as can be given. One uses the book more as a dictionary than as an encyclopedia, although it partakes somewhat of each.

Since it is confined to cultivated plants in the United States outside of specialized institutions and collections, it is inevitably a large book and is compressed into as small space as possible. The horticultural worker will find in it, however, ample information to meet his needs. Those who are familiar with the author's Standard Cyclopedia of Horticulture and his Manual of Cultivated Plants will recognize the familiar excellencies and appreciate a volume in which the horticulturist is given particular attention.

The Gardener's Pocketbook

Prunus serrulata Lindl. Variety Kwanzan. Oriental Cherry. (See page 47.)

Among the many varieties of flowering cherries grouped here and there about the drives of Potomac Park, Washington, D. C., none draws more expressions of delight from the passing visitors than does Kwanzan, the sub-

ject of this note. It is possible that in Japan it may not be so revered as the more ancient Fugenzo figured in the last issue or considered so subtle in its charms as some of the single-flowered varieties that bloom earlier and perish gallantly with the first flareback of winter, but here at least there is a genuine thrill in the masses of warm, rosy pink flowers.



E. L. Crandall

Oriental cherry, Kwanzan

[See page 46]

There is further a practical value in the choice of this variety, since many of the more delicately pink tinted varieties appear as white in the spring scene and are a little chilly in our northern landscape. Kwanzan, however, is of so certain and so warm a pink that even the cold winds of April can not dispel the illusion.

Planted with the paler Fugenzo and the semi-double white Shirotae that flowers with it, it makes a nice sequence of colors.

Usually about 12 to 18 feet high, of upright habit, Kwanzan is distinct even in winter condition, forming a not much branched tree with a somewhat rounded crown and dark, reddish-brown bark. The young leaves are bright coppery pink, appearing when many of the truncate flower buds are showing red and some are half opened, and the relatively large and conspicuous leaf scales are dull red. In the large flowers, often $2\frac{1}{2}$ inches across, the deep pink or red of the buds has become lightened to a clear pink, and from the center of each flower protrude the two leaflike green styles. The flowers are borne in drooping clusters of three or four in such profusion that the tree becomes a compact mass of bloom, and the now greenish-brown foliage makes an effective contrast with the rosy pink petals.

Perhaps the finest display of this variety is to be seen in Potomac Park, Washington, D. C., where more than two hundred trees, in excellent condition, are grouped around Hains Point. Planted in 1912, the trees are now about 16 feet high, and give promise of many more years of bloom. The flowers of Kwanzan open at about the same time as those of Fugenzo, close to the end of the cherry-blooming season, and remain in attractive condition for nearly a week, unless an untimely wind storm breaks up the cherry party by dashing to the ground the millions of rosy petals.

Most effective when placed in small groups among or in front of evergreens Kwanzan deserves to be extensively

planted wherever flowering cherries can be grown. It is as hardy as any of the double-flowered Japanese cherries, and should thrive in any region suitable for growing peaches. It may be propagated by grafting or budding on seedlings of *Prunus serrulata* or on mazzard and its culture in general is the same as for the sweet cherry. While pruning is not advocated for flowering cherries in general, at times, in the case of Kwanzan particularly, young trees sometimes develop long "leaders." The extreme tips of these branches may be cut if a low-head tree is desired.

There are certain advantages, however, in high heads for double flowering cherries. Since the blossoms all hang down from their very weight, one of the most enchanting views of the tree comes when the garden path passes under the tree so that one may stand looking up into the faces of the nodding blossoms.

Kwanzan, also called Kanzan, Kansan, Sekizan, and Sekiyama, is one of the flowering cherries listed by a number of eastern nurseries, and three Pacific Coast nurseries now include it in their catalogs.

PAUL RUSSELL.

Washington, D. C.

Clematis, Campanile. (See page 47.)

Although the word clematis suggests most commonly either our native Virgin's Bower, the Japanese species *paniculata* or some plant like old *Jackmanni* with its wealth of purple blossoms, where it condescends to grow, there are other sections of the genus that are quite different.

American gardens do not commonly show plants of the type of *C. davidiana*, which is an erect, somewhat woody plant with flowers more like four-petalled hyacinth bells than ordinary clematis. Possibly it has never been popular because its flower masses are not abundant and showy like the clouds of bloom that cover the climbing species.



Michael Carron

Clematis, Campanile

See page 48]

In Lemoines' catalog are listed three seedling forms which were "raised from seeds saved from *C. grata* (*Jouiniana*) without any artificial cross, and remind one more of *C. davidiana* than of the plant from which they proceed; they have lost the character of climbers; their flowers, produced in great quantity, are of a more or less vivid blue. They are perfectly hardy and when planted in a lawn, they form very fine subjects carrying in September a profusion of flowers."

Just what is meant by putting *Jouiniana* in parenthesis after *grata* is not clear. The latter is a species belonging in the group with our native *virginiana* and like it in a general way, while *Jouiniana* is a hybrid of *davidiana* and *vitalba*, the latter like *virginiana* in character.

In any event, the hybrid of this note is an excellent herbaceous plant producing a basal mass of heavy foliage and stems crowded with flowers as shown in the figure. This summer, famous for its heat and drought, lowered the stature of the plant but did not diminish the flowering which came with us in August rather than September. Less susceptible to nematode attack than most clematis, this should certainly be of great value to perennial borders of midsummer.

Of the three varieties tried, *campanile*, *Côte d'Azur* and *Oiseau Bleu*, the first seems best for general effect although the deep flowers of *Côte d'Azur* are very handsome nearby.

Washington, D. C.

Allium flavum L. (See page 51.)

The illustration of this species, a very easy onion for garden borders, is typical of other species as well, and yet shows marked difference from the other onions we have figured.

This is a common European species that forms low tufts of dark green evergreen foliage, which is quickly transformed in spring by the new growths that push up with a steel blue color overlying the green. The

flowering stalks and the bracts covering the flower head are even more glaucous and make a brave show before the heads of light greenish yellow flowers spill out of their sheath. Like many other onions, this does not betray the family scent unless roughly handled. It also has shown no tendency to spread underground or to produce bulbils in the flower heads, but it does seed freely, and so the flower heads should be cut off immediately the blooms have faded in order not to fill the rock garden with myriads of little onions.

The flowers keep well when cut and the undeveloped buds open in their turn, while the older blooms become papery and transparent.

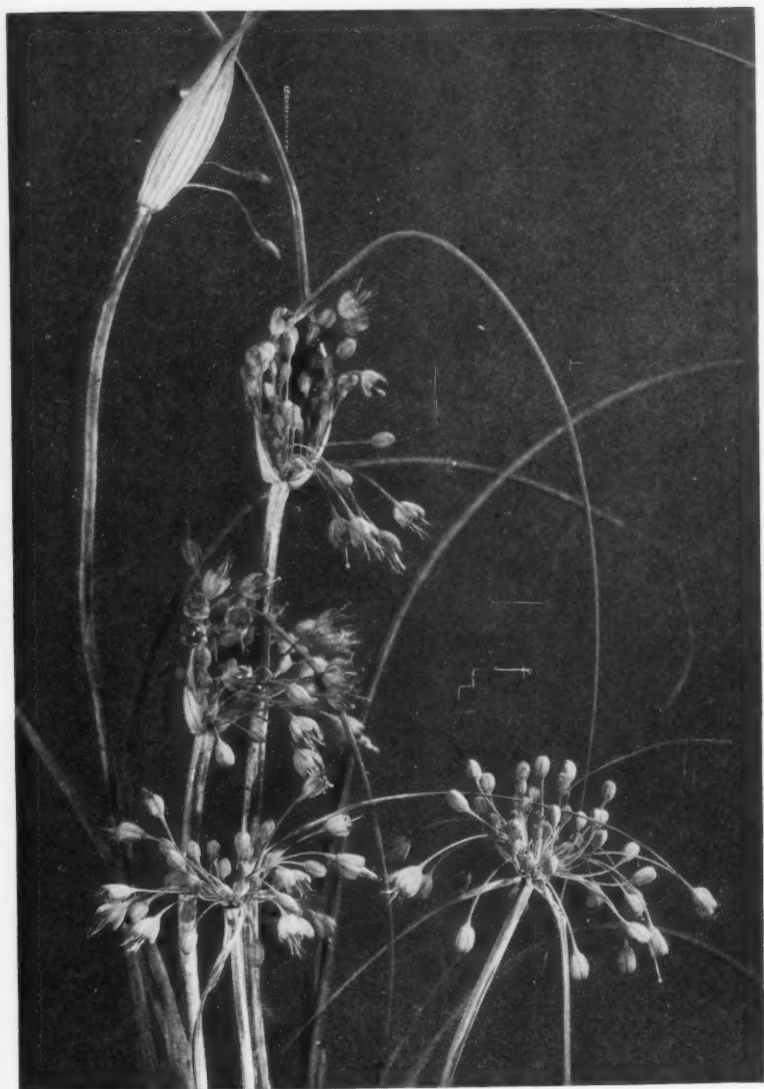
Here it blossoms about the time that *Heuchera sanguinea* is opening its first flowers and while *Erodium manescavi* is in full flush, facts discovered this season to the great disadvantage of all three plants which are not harmonious neighbors!

Washington, D. C.

Camassia leichtlini Wats. Leichtlin's Camassia. (See page 51.)

Among the many Western bulbs that Mr. Carl Purdy mentioned during his recent lecture tour, was this camassia. One thinks with some wistfulness of the great meadow that he described in which grew so many of these bulbs in so compact a mass that the whole appeared like a lake of water instead of a sea of flowers. Such a location is their preference, with a deep and fertile soil, well watered even to boggyness during the flowering time but drying off for the late summer rest and well drained for winter.

In cultivation they are tolerant of almost all good soils and show their displeasure or approval of conditions by the smallness or the greatness of their stalks. Even in the editor's garden where water is never abundant and where drainage is almost too perfect, they have grown well for years although their stature has been



Lilian A. Guernsey

Allium flavum

[See page 50]

too low for California reporting. Here they bloom just as Darwin tulips are over and with some of the best of the long spurred columbines.

The illustration shows the type of the flower stalk and the flowers themselves but only hints at the delicacy of the lavender blooms, with the gay green ovary and the gold anthers. It does not show, however, the brilliant pattern made by the brilliant blue green buds, each subtended by a bright yellow to orange bract.

For the beginner only one word of caution should be given. When you open your package, do not expect neat and shiny bulbs like tulips or narcissus, for camassias are irregular, dull colored and rather shabby looking, so indifferent that on first acquaintance one suspects they may be almost diseased, but this is not the case.

Washington, D. C.

Rosa pomifera Herm. (See page 55.)

As every one knows, there are roses and roses, and if one looks back through rose history he will discover that there have always been roses and roses, but what does appear is the fact that when one says "rose" it is the image of a flower that comes to mind and not a flowering plant. So every generation has had its ideal of what a rose should be and fashions have changed with the times and the admirers.

Only an occasional notice is to be found for any thing but rose flowers. Now it is undeniably true that many rose plants are ugly affairs and disagreeable garden residents, so that no one would be tempted to bring them to gardens, but there are roses that are not important for their flowers in a garden sense but have curious and distinct beauties of their own. The particular moment of beauty for the rose of our note comes in the fall. Its flowers are large and uninteresting—of the familiar dull lavender pink and the bush itself, at least in this region with its long, hot summer, looks as bedraggled as a

sweet briar. With the cooler weather of fall, new growths break from the little fruiting twigs, with tender green leaves contrasting vividly with the now reddening fruits. These are large, often more than an inch in diameter, and of the most brilliant orange red, sprigged all over with weak prickles, and topped by the showy and persistent sepals. Like many rose hips, these fruits may be eaten after the prickles are rubbed away, but the gardener will be more interested in branches for the house than in fruits for nibbling.

As a late autumn bouquet, a branch or two of this rose, with some pearl berried branches of Mrs. Wilson's barberry, and a branch of white flowered osmanthus, might be suggested.

Washington, D. C.

Syringa yunnanensis Franchet. Yunnan Lilac. (See page 57.)

Among the species of lilac that are coming into common cultivation in recent years and establishing new concepts of lilac form and beauty, this is a most interesting example. Unlike the old lilac of dooryard and hedgerow, this plant makes a strong, rather upright shrub with several main trunks and few smaller shoots but no mass of suckers. The lateral branches are rather wide-spreading so that the plant comes eventually to a fine size. When once established it is covered with its masses of flowers as shown in the figure, flowers distinct among these later blooming species for the warm brownish pink quality of the buds and the tubes of the opened flowers. The technical color terms in Mrs. McKelvey's monograph, light russet-vinaceous and pale purplish-vinaceous, give the clue, warm wine purples and pinks tinged with buff, but not enough to neutralize the clarity of the pinks.

For the lilac lover who does not feel that all lilacs must be like the familiar lilac of old gardens and who



Lilian A. Guernsey

Leichtlin's Camassia

[See page 50]

needs a shrub or two to flower in late May or early June and carry on the lilac tradition, this example should be recommended.

Washington, D. C.

Regelio-cyclus iris. (See page 59.)

One never looks at the exquisitely pencilled flowers of an oncoecylus or regelia iris or of any of their progeny without thinking back to all the many names of horticulturists who struggled with the several untractable parents that have combined to make the more amenable hybrids represented in our illustration. I have turned many times to the chapter written by the Rev. Henry Ewbank (memorialized in the Darwin tulip), for the late Irwin Lynch's "Book of the Iris" and to the discussions written by Mr. Lynch in his chapter on "Hybrids and Hybridizing" for the same book.

In the first one finds the discussion of the cultural difficulties that lead up to the production of the hybrid race represented here; in the latter notes describing the work done by Mr. Van Tubergen in producing the race.

As has been guessed, there are plants of particular needs that must be variously met. If one understands clearly that their parents came from countries where there are distinct dry summers and wet but not extremely cold winters, he can analyze what must be done in our own climate where wet summers and wet, cold winters may be more characteristic. Each gardener must make his own compromise, remembering that extra drainage and warm situations will often compensate for weather.

As to the beauty of the flowers themselves, little need be said. It is not the beauty of the bearded iris, but rather the exquisite beauty of an etching or a delicate filigree and the iris enthusiast must learn to see it for itself and not in comparison to any common standard.

Washington, D. C.

Lilium nepalense G. Don. The Nepal Lily. (See page 61.)

Among the many lamentable things connected with the death of the late E. H. Wilson, was an unfinished correspondence about the lily of this note. The editor recognizes his temerity at differing from Mr. Wilson in the identity of the flower illustrated, but feels satisfied now as then that this is the true *L. nepalense* of G. Don and not the *L. ochraceum* of Franchet.

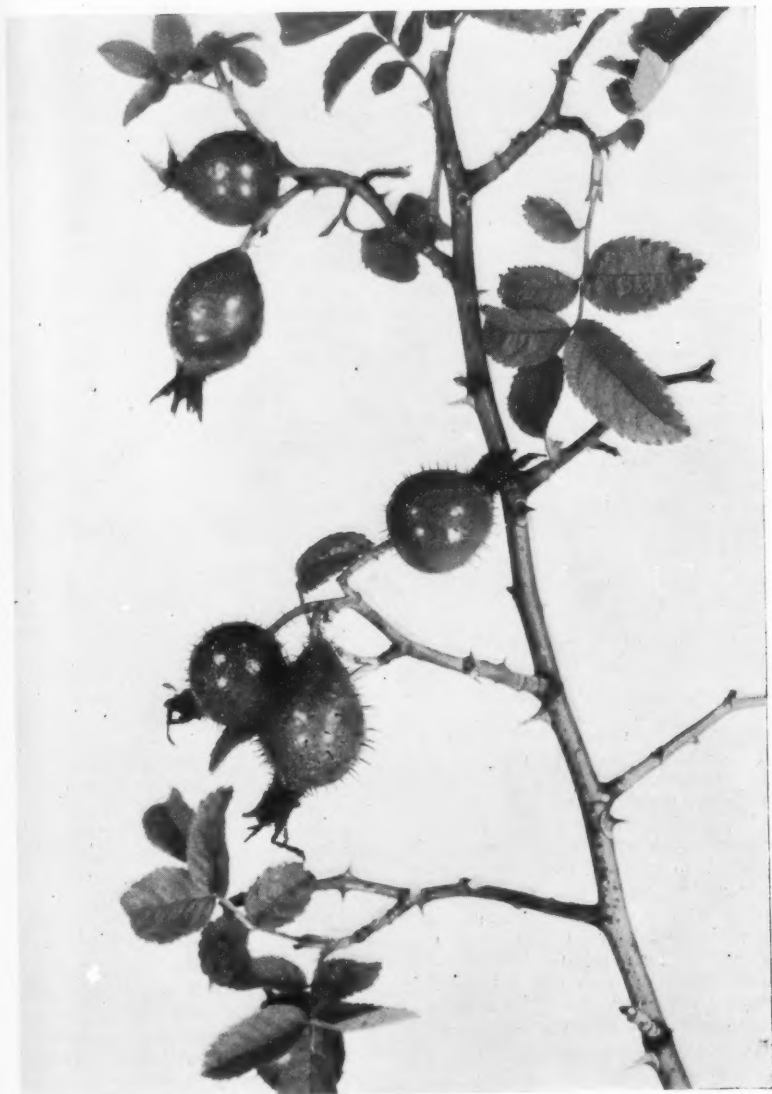
Apparently much of the difficulty which has brought confusion between the two species has been related to illustrations, starting with the original Wallich figure which shows a plant only too obviously drawn from herbarium material, with the result that the trumpet-like character of the flower is grossly exaggerated.

As living flowers developed on our figured plant, the buds showed all the shape and character of a trumpet lily until they opened, when the segments reflexed as the illustration shows, but not to such an extent that one could confuse it with a martagon type of flower. As the flower withers it again assumes a trumpet-like shape before it finally loses its petals.

Many of the illustrations that followed Wallich and Elwes were drawn with the fully opened flower tilted back in order to show the chocolate purple markings in the heart of the flower that give a like appearance to the similarly marked *ochraceum* of which we will have an illustration in the next issue.

Both of the species are tender as to cold and are more curious than beautiful as grown in pots in a cool greenhouse. Both are scented, but the present subject is much less marked and delicious than *ochraceum*, which has a perfume much like *Magnolia glauca*, our sweet bay magnolia. Under glass the Nepal lily flowers fully two weeks in advance of *Lilium ochraceum* of Franchet.

Washington, D. C.



Lilian A. Guernsey

Rosa pomifera

[See page 60]

Brodiaea hendersoni Watson. Henderson's *Brodiaea*. (See page 61.)

The *brodiaeas* are not so well known in the East as should be and one wonders a little if they are appreciated fully in their native haunts. There are many of them with a considerable range of flower styles and colors, all of which we hope to record in these pages before we are done.

The bulbs look more like crocus corms than any of the familiar bulbs with fibrous coats that can be removed to leave the woody corm within. They are rather smaller in size than most of the garden forms of crocus but larger than some of the crocus species. In planting in the East, an extra supply of sandy gravel was dug into the hole and a spot was chosen on a sunny southern slope. Here the few somewhat lax leaves pushed up with the first warmth of spring to be nipped a little on the tips much as is the fate of Spanish iris. The flower shoots develop more slowly and are not in danger.

Our illustration, which shows the plant about half its natural size, indicates quite clearly the forms and general style of this species. In color it is a clear lemon buff with dull purple stripes in the center of each segment. The coloring is not so showy as in some other species, but a clump of five to ten bulbs makes a very distinct spot in the early border.

Like most *brodiaeas*, this species is excellent when cut, for the flowers when withering dry up and close over the developing seed pod as can be seen in the right hand flower of the lower umbel. The small buds continue to develop and open almost as large as the flowers that open on the plant.

Washington, D. C.

Poet's *Narcissus*

Of the many forms that may be had in this large family of garden

plants, perhaps none is so well loved as the group that come under this common name. All have been known for centuries, even in garden cultivation. All are known by their glistening white perianths, the small eyes more or less uniformly of a pattern and their delightful and characteristic scent. Although they are plants that ascend to considerable heights in the Alps, they will endure well enough far south in this country and yield their annual increase in bulbs and harvest of flowers for many, many years.

In the hands of gardeners, it was soon discovered that there was a wide range in the times of blossoming and in the shape and size of the flowers. By mating the early and the late, the symmetrical and the irregular, a great number of forms has been evolved. It has been discovered as well that there are variations in the size and pattern of the eyes, even to the extreme case in which the original ribbon of deep crimson, showing so clearly on the edge of the eye, has been diffused over the entire surface. In such varieties as the older *Acme* and the modern *Ace of Diamonds*, this red eye has a singular beauty, especially when the flowers are cut and allowed to develop indoors.

The trio of flowers shown on page 65 represents modern development, although by no means the last word, *Ringdove*, *Dulcimer* and *Sonata*. Only a colored reproduction can convey the delicacies that may be found in the different color patterns in the eyes of the flowers. In *Ringdove*, the uppermost flower, the ribbon edge is of the deepest crimson, with only a hint of a white line within it, bounding the yellow eye with its trace of intense green showing below the anthers. *Dulcimer* shows much less of contrast between the scarlet of the ribbon and the deep yellow of the eye, while *Sonata* has the widest edging of scarlet and the most clearly marked line of white between it and the yellow.

Washington, D. C.



Dorothy Colvin

[See page 62]

The Yunnan Lilac

After the Drought

By SHERMAN R. DUFFY

This is a dry story so that he who reads may run.

Gardeners of the American continent can speed the parting year with a good stomach and hail the advent of the new with great joy and confident that it will be better than the departing one because it can't reasonably be worse. It was the year of the big drought.

The year of the big drought deserves a place in climatological chronicles and family legend beside the year of the big wind in Ireland concerning which we of Irish distraction have often heard. Devil a wind in the world blew like that one. Never a drought dried like that of 1930. So dry was it that the driest of states voted enthusiastically wet and it did no good.

While we suspected it all the time, we now have it officially from the United States Weather Bureau that it was the greatest drought the American continent has ever known. For once the dry bones of a government report are soothing since the drought is over for we can read and learn how much we suffered and sympathize with ourselves and each other. July brought the record of moisture deficiency, in the writer's garden, the deficiency being 70 per cent compared with normal, Missouri and Arkansas achieving a greater state of dessication with 76 and 80 per cent deficiency respectively while Kentucky seared equally with Illinois.

It is interesting to know from the experts of the government that stagnation of the air blanket over the continent caused the drought but they do not know what caused the stagnation. They also declare that droughts can not be predicted and that the common belief that such catastrophes travel in cycles has no foundation of fact or science, so all one can do is hope for

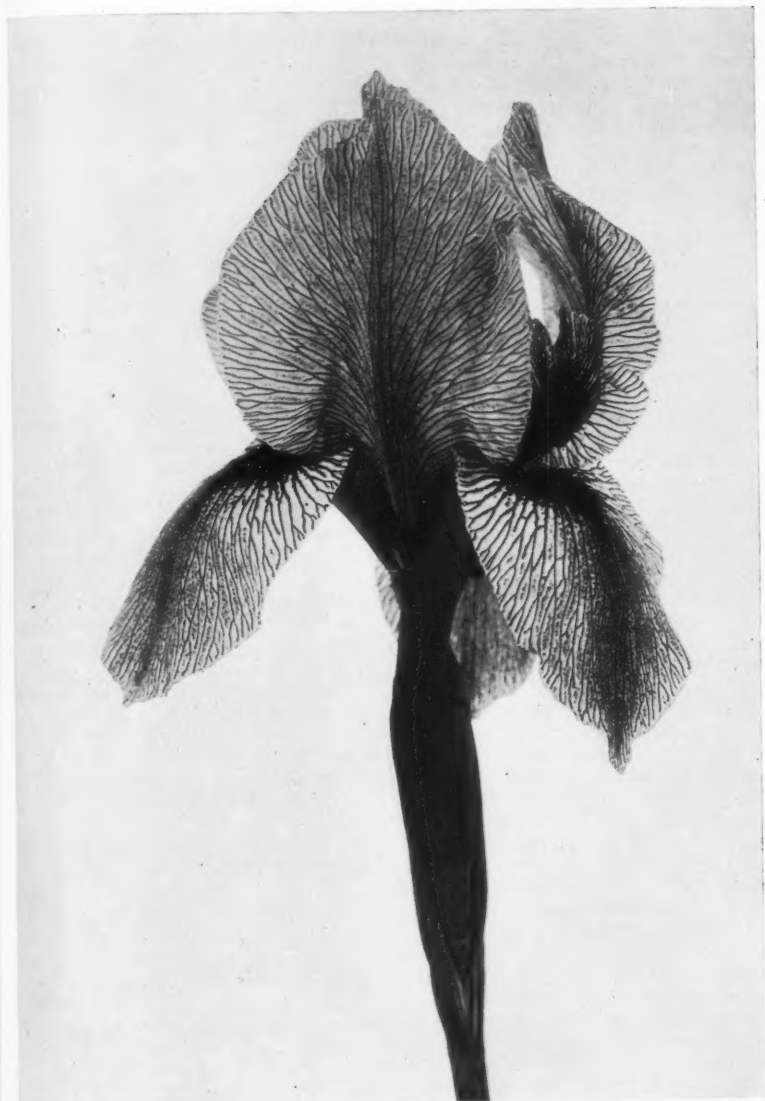
the best and remedy conditions as discovered by this amateur Sahara summer as best may be in order to withstand drought in the future.

All signs fail in dry weather according to an old saw current in bucolic districts. They did to a considerable extent in plant life, for plants which were believed to require much moisture came through in surprisingly good shape while others reputed to be good drought resisters didn't resist so well when it came to the test. It is good garden philosophy to give the devil his due and admire him for his industry and perseverance and make the best of conditions and learn what we can from them. In this drought we learned a list of plants that would stand unprecedented lack of water in their normal growing medium and yet present a respectable appearance through it all and brighten up gardens which were otherwise mortuary in the extreme.

One of the most disastrous features of the drought was the failure of the public water supply or its curtailment in many cities so that the usual watering of the garden practiced in briefer dry spells was out of the question. The plants had to live or die without assistance to maintain an existence so far as the artificial providing of moisture was concerned.

This condition has again raised the debate of whether to trench or not to trench and the trenchers insist that digging and turning the soil and adding humus and fertilizer the traditional three spits deep is an ameliorating condition. I have never believed that in ordinary garden soil trenching was at all necessary or advisable and that it was doing unnecessary work that accomplished little or nothing, which is the height of inefficiency.

It has been my observation that



Lilian A. Guernsey

Regilio-cyclus Iris

[See page 54]

when humus gets thoroughly dry there is no soil matter that is dryer, while recognizing its value as a vegetable sponge to hold moisture when there is moisture to hold. Having had a well-trenched border, filled in with synthetic manure liberally and the full three spits down to observe in comparison with the rest of the garden, I found the death rate just as high in the trenched soil as the untrenched.

However, Mr. Leonard Barron, horticultural editor of the Doubleday, Doran & Co. publications and one of our best garden authorities, in a recent letter remarked that he thought he was going back to trenching the three spits down for the reason that he couldn't get anybody to do a decent job of spading and that the ordinary spading was only half a job and didn't stir the soil more than six inches down. A three-spit trenching on this basis would mean merely digging the soil to a good depth. When I am particular about it, I do the digging myself and see that it is a good deep digging and good, deep digging will suffice ordinarily. Trenching by the ordinary hired help would result in a good deep digging if no more, and on that basis I should be for it.

The surprise of the season to me was to find that hemerocallis which at one time I gave up because my soil is naturally rather dry and they didn't seem to flourish were one of the best drought resisters in the garden and never gave such lavish bloom. In August, when the drought was at its height, *H. citrina* and *H. thunbergii* were the bright spots, making fine height and blooming more freely than they had ever done before. The same lavish display of bloom was in evidence in the early varieties, such as Apricot, Sovereign, Gold Dust, flava major and others.

Tall bearded irises, reputed to revel in hot dry bakes, got altogether too much of a good thing and for the first time in my experience rhizomes shrivelled and died.

Always having had a weakness for the primrose path, none of the season's fatalities caused me more grief than to see my most prized primroses, despite violating city orders and surreptitiously soaking them once a week, curl up and pass on.

The polyanthus, allowed to meet its fate, well knowing it was a simple matter to raise a new supply from seed, shrivelled up and seemed to have joined their more exclusive relatives, but with the first rains of fall nearly all of them came to life and put out fresh green foliage and a few of them produced fall bloom.

This is the one ironclad primrose. I shall treasure it and the seed order this spring shall include new strains and colors of polyanthus.

The most thoroughly satisfactory plant in the garden during all the shrivelling and scorching days of mid-summer was the double gypsophila, Bristol Fairy. It produced its clouds of cool, clean, white rosettes faithfully and unflaggingly and never showed the least sign that there was a drought. The old type form, *Gypsophila paniculata*, always seemed to me to be much ado about nothing,—never a clean white and soon going into decadence.

The cleaner white misty galium I always preferred to the old-fashioned gypsophila and the lacy bedstraw no more seemed to mind the drought than the gypsophila.

In general, our native prairie plants which have found their way into cultivation were mainstays, particularly the gaillardia, which was the bright faithful performer all summer and made a magnificently brilliant showing with the cool days of fall. I should place the gaillardia at the top of a list of drought resisters.

Rudbeckias, expected to be durable, with the exception of *R. purpurea*, had a tough time of it and produced little bloom but lived. The common native *R. hirta* in the wild performed normally. *R. speciosa* or *Newmani* and *R. triloba* felt the heat and drought and curled up under it.



Lilian A. Guernsey

The Nepal Lily

[See page 54]

The cool blue of *Salvia azurea* was one of the season's delights. Never was this plant so much appreciated. It shall be increased and distributed about the garden to be ready for another drought. Another blue that performed as if nothing unusual in the way of weather was being inflicted was the globe thistle. This is an iron-clad drought resister.

There were no sadder nor more bedraggled blues in the garden than the upright veronicas, *spicata* and *longifolia subsessilis*, the latter one of the casualties. The evergreen creeping veronicas such as *rupestris* and *repens* remained fresh, green and vigorous. *Veronica amethystina* Royal Blue seemed as immune as the creeping species, remained fresh and green and gave its usual wealth of rich blue spikes. If this plant could only make up its mind to lead an upright life or decide to flop and trail from the start it would be vastly improved, but it has the habit of starting into bloom in a fine upright condition and when in full beauty deciding to fall over. It is most effective when tied up lightly so that it can be held erect during its blooming.

I gave thanks daily for the mulleins, Harkness hybrid, Miss Willmott and olympicum. While their velvet leaves curled with the heat, the fine candelabra of yellow and white bloom yielded not a whit to drying winds and scorching sun.

Of the asters, the *laevis* type came through unscathed and gave its usual beautiful fall display of blue. The longer I have this aster in quantity the better I like it. The *Novae-belgiae* named types were utter failures, all fading to a dirty drab and being a mass of naked stems, brown foliage with ragged flowers atop. The New England asters were most disreputable of foliage but with their usual brilliance of bloom. The golden rods and the sun-flowers never relinquished normalcy.

The purple spikes of *liatris*, while shorter-lived than usual, gave their characteristic display both in the

garden and on the prairie. The species *scariosa* seemed to be the best of them under the conditions.

Pyrethrums shrivelled as to foliage but remained alive and in the fall seemed as vigorous as ever. They gave normal bloom despite an exceptionally dry spring.

Columbines greyed with red spider, drooped but gave their usual bloom in May and early June and came back to make vigorous new growth last fall. Apparently an established columbine can take care of itself under the most severe of climactic vicissitudes. Meadow rues maintained their foliage even better than the columbine.

Perennial phlox were sad sights in gardens where they could not be copiously watered but is not a plant for a dry garden even in a year of normal rainfall. The lower-growing phloxes were not so particular, *subulata*, *divaricata*, and *bifida*, recently introduced to the garden from a prairie colony, furnishing one of the continuously fresh green spots.

Richest of all the unwavering greens was that of the maiden pink, *Dianthus deltoides*. In general the whole race of garden pinks which make good tap roots escaped the destruction of the drought. The *plumarius* and *All-woodis* had some casualties but the majority survived.

Delphiniums suffered severely. I had counted them as a total loss but new growth sprang up from some of the roots in the fall even though leaf and stem had shrivelled and perished in August.

Plants which usually have a summer period of dormancy or cessation of active growth such as the oriental poppies and bearded irises with a period of fall growth gave much worry. I began to think the poppies never would appear and the bearded irises were so late in making new growth and showing the increase in the way of side shoots indicating the likelihood of bloom from the central fan, that I am still dubious as to bloom this year. They gave the smallest in-



Lilian A. Guernsey

Henderson's *Brodiaea*

[See page 56]

crease on record in my garden, but I found this was not true in many other gardens.

The poppies delayed starting growth in some instances until as late as November.

The effect on bulbous plants can not be reported until the blooming season this year. The tulip season was cut down to a brief flash of bloom in many localities. Whether the premature drying off of the foliage of tulips and daffodils will show a weakening effect remains to be seen. A few daffodils inadvertently uprooted in garden operations in August, however, seemed to have formed as good bulbs as usual.

Tulips in the shade fared far better than those in the open sun. The longer I grow tulips the more certain I have become that their best position is one sheltered from the sun for at least half the day and preferably from afternoon sun.

Dahlias were a deplorable failure in many gardens, even with a water supply adequate for the roots. The hot, dry air seemed hostile to their development.

The usual supply of annuals was out of the question in communities cut off from the usual water supply because of drought conditions. The most important loss seemed to me to be the zinnias and asters which succumbed. Calendulas lived but languidly. French and African marigolds, although of supposed tropical disposition, faded away with the exception of the tall French Josephine, which was one of the mainstays for cut flowers.

The tiny little marigold, *Tagetes signata pumila*, looked like a desert plant, growing and blooming luxuriantly. This with *Statice latifolia* which, I believe, is now changed to a *Limonium* by botanists, I have frequently used in combination for edging beds. The statice is well known as a drought resister and did not fail to live up to its dry accomplishment. The lavender mist of statice and the orange yellow

and brilliant green of the dwarf marigold were more joyous than usual.

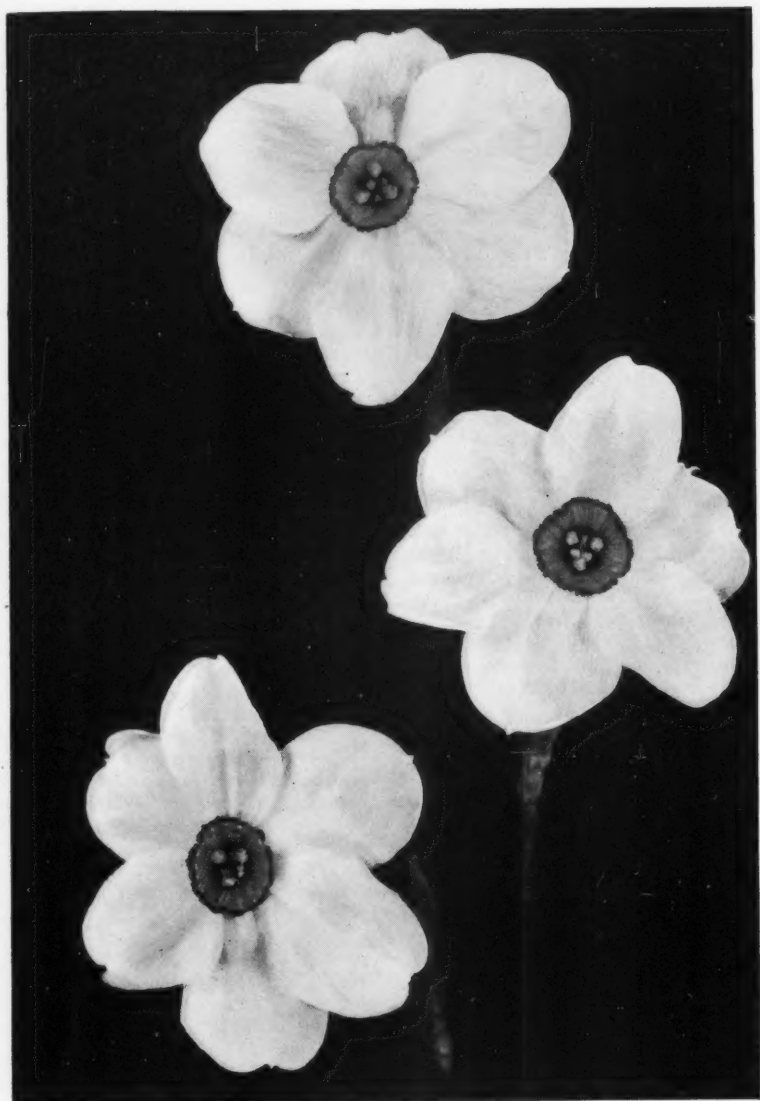
Sweet alyssum, petunias, and centaureas were the other survivors of a desperately dry situation. Scabiosas departed. Opium poppies, usually depended upon for a gay succession to the Shirleys, got the dry affliction of red spider, curled up and went away. The Shirleys gave a flash of bloom and died.

Portulaca came into new favor. I have seen this used more and more in the cracks between the stones in flag walks or crazy paving. It is most useful for this purpose and gives an unusually brilliant display. There are some raw and unpleasant colors in this old fashioned annual, but it is a simple matter to pull out these plants when they bloom, leaving only the good colors.

The rigors of the drought first became apparent in early spring and particularly during April and May, the season of seed planting. The outdoor seed beds in many cases were failure. After obtaining good germination, hot winds and dry weeks made it impossible to keep seedlings alive in the seed rows and the task of making them live after transplanting was even more difficult in drought-stricken regions.

The lesson brought home by the great losses of seedlings in open ground seed beds is that seeds of choice plants should be sown in boxes or frames where they can be kept under control as to moisture and shade without difficulty. This is the only certain way to save the plants, as the most favored positions for seed beds in the open ground this year had serious losses.

One of the fantastic features of the drought was that after the infrequent showers or brief bursts of thunder storms, it seemed even dryer than before. The scientists of the United States Weather Bureau assure us that this apparently paradoxical condition really existed and that it became dryer after a shower than it was before. The



Lilian A. Guernsey

Poet's Narcissus

[See page 56]

report confirming the fact that it sometimes makes it dryer to water in dry times gives the following interesting statement:

"During this stagnation the occasional showers and thunder showers here and there over drought-stricken regions served only to dry out overlying air masses. Only a part, at best, of this water is evaporated back into the free air with little or no moisture borne in by the winds from the oceans. Each successive inland shower, coupled with the stagnation and absence of general rain-causing processes, tends to further deplete the moisture supply and intensify the drought condition."

The forecasters declare that so far the forecasting of such climactic catastrophes as a long drought is concerned, they are still in the speculative stage. They discard all theories of disturbing the stagnation of the air blanket by explosives, firing of cannon or other methods of upsetting it to produce rainfall as too fantastic for consideration and are doubtful as to what steps might be taken to forestall economic losses could a drought be forecast some time in advance.

The best that can be done is to draw what lessons we can from the conditions such as we ourselves faced in our own gardens and observed in other gardens. One point seemed to be that plants in mellow soil had a better chance of survival and did survive in

larger numbers than those in heavier soil. The latter cracked wide open to great depth, in some instances breaking roots or exposing them to the air.

This condition could be avoided by adding humus, sand, or crushed limestone to the soil to break up its heavy consistency. The evaporation in light soils certainly would be delayed by a plentiful supply of humus.

If one could be warned in advance, the accumulation of an adequate supply of mulching material to be applied when the soil was moist would be another method of delaying evaporation. For this purpose lawn clippings and peat moss seem the most common materials so far as this writer has observed. Peat moss in dry times seems to be almost water proof and sheds moisture and some maintain keeps as much moisture out of the soil when it rains as it keeps in when it doesn't rain.

Keeping the soil well under cultivation with a dust mulch is an old established method of slowing the escape of moisture. It would seem essential to follow this method to even greater depth in excessively dry times than is commonly employed.

The drought of last year, however, dried the soil so completely to such depth in many sections of the country that none of these methods did more than delay catastrophe to plants.

Passing Comment—Succulents

To any one who has been through any cycle of gardening of his own and has watched, as well, his neighbors at home and abroad, there comes often the thought of wonder as to what it is all about, for there seems to be fashion and change in the gardening world quite as much as in other worlds. One observation that might be made with some safety, perhaps, is that in the garden world taste often swings back and forth with pendulum-like regular-

ity as it does elsewhere. It can be recalled without much difficulty that there was a time when it was proper to have only formal gardens in that limited sense that implied interest in carpet bedding and its related monstrosities; the rebellion that followed is still fresh in the mind of many with the gradual clarification of the understanding of what formality really meant and an appreciation of the limited field in which carpet bedding can

be properly employed; the tendency to over-value, wildness and rusticity that characterized a succeeding period, is not distant and our present era with its passions for collecting, for fashionable arranging, almost stage-setting, is ever with us.

It is interesting, at this time, to comment upon the fact that in a period when "modernistic" design, with its sympathy for surface, pattern, metal-like substance is upon us, there should also be a revival of general interest like that of the old era of formal gardening, in the succulents, that exhibit so many of the characteristics that mark present-day interior decoration.

In this issue of the magazine, where many pages have been given over to the illustration of succulents, it might be well to pause to see what is their beauty, beyond their obliging dispositions, that accept living-room treatment with a degree of equanimity that is amazing.

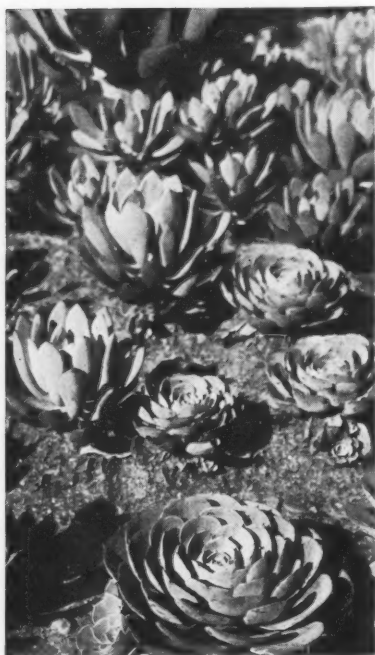
Turning back to the group of pictures that appear on pages 14 to 19, one finds a number of succulent plants that have been treated as pot plants particularly for the beauty of their form and patterns. The simplest forms are shown in the first illustration with two plants showing opposite leaves in alternating pairs. What an astonishing difference in the general effect is accomplished by the wider leaf spacing of the *kitchingia*. What delightfully contrasting curves are presented by its four pairs of leaves, drooping, recurved, horizontal, ascending; what comment on the cycle of life and growth. The same thing is shown in the *kalanchoe*, but less clearly on account of the more crowded stem. A little later this plant will send out from the axils of the leaves, slender naked stalks tipped with small umbels of flowers, four-petalled, faintly lilac-white and delicately scented, and on other branches small rosettes that can be taken off for propagation.

The trio on page 15 are put together for contrast in line and style.

The two aloes exhibit only two of the many forms that aloes may take, others of which may be guessed at by the seedlings shown in the illustrations on page 21. In this pair we have again illustrated the differences in plant pattern that arise from the width of spacing of leaves along the stems, and in addition the curious difference in effect that comes from the angle of the leaf itself as it leaves the stem. With them is a youngish plant of a *pachypodium*, or elephant's foot, with its clumsy spiny stem and clustered leaves crowding each branch, from which will come in time the slender branches bearing rather ugly, gaping yellow flowers.

The beauty of the *cotyledon* on page 16 lies chiefly in the exquisite coloring of the leaves which are of a tender green almost entirely covered with a powdery glaucous white bloom, tinged at the tips with a hint of rose. In this little plant, scarcely a foot high, what a record of growth is shown in the crooked stem scarred from many leaf bases and fallen branches. Contrast this with the curious creeping habits of the little *caralluma* with its ascending branches showing the characteristic warty ridges along its four angles.

The pair for page 17 is of a different kind, with stiff and hard-surfaced leaves for all their inner succulence. The encrusted leaves of this and many other *haworthias* give most unusual patterns in the contrast between the dull whites of the tubercles against the dull green, sometimes reddish greens of the leaves themselves. The leaves do not always turn in against the stem, giving a feather-like arrangement, but sometimes stand free as in the aloes and agaves. About the base of the older stalk are rising the young branches that furnish the material for propagation, even better than the tips of older shoots. The *apicra*, on the other hand, has fewer rows of leaves so that it builds up its stems with more obvious symmetry into a veritable pagoda of dull green leaves



Contrasting rosette patterns of the flat-topped echeveria and the deeper cup-like pachyphytum.

that flush with brilliant crimson in the hottest weathers. In these two are still other studies of the curves that relate leaf to leaf, leaf to stem and branch to branch.

On page 18 there is the greatest contrast of form between the aloe-like *Lomatophyllum* and the astonishing *senecio*! Surely no modernist ever dreamed a more curiously fashioned plant than this radial creation with its circles of leaves all turned on their edges and flattened to planes. If one could look down directly over the



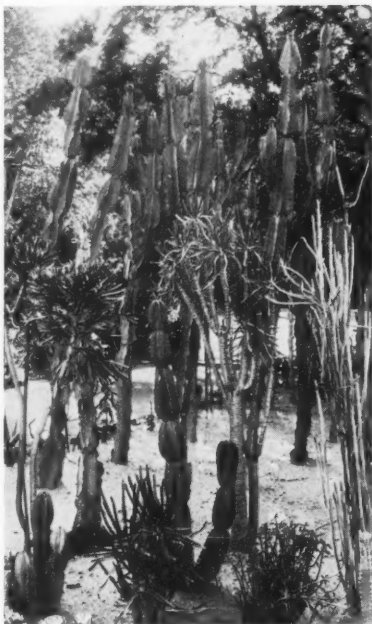
Contrast the patterns of the several agaves. Even pot-grown specimens in the East do not lose all the fine lines, the curves of leaf and

plant an even more astonishing plan would be discovered.

Facing these on page 19 are another pair with still different forms, the coarse-leaved kalanchoe as artificially articulated in its stem and leaf arrangement as one could fancy with leaves as distinctly arranged as in the specimens in the first group. Beside this the familiar rosette of the sempervivum seems old and simple. The distinctive thing in this form is the relation of the bracing that comes between the erect, angled branches and the brace roots.



spine, the variation in breadth and color, the play of light and shade that mature so magnificently in its native or more favorable climates



The strange forms of the tropical euphorbias bring an exotic note into the northern landscape even in a botanic garden group

Fringed Gentian

By FRED M. ABBEY

My knowledge of *Gentiana crinita*, the Eastern Fringed Gentian, dates to my earliest nursery experience when a few scattered plants grew near the place where I was employed. These were the first I ever saw, and not until several years later did I see it growing wild, this time in an Adirondack brook meadow. From that source, I brought plants in sods, with buds set, and planted them on what seemed at that time a likely location. They flowered, and set seed, but of course never grew again.

However, the next fall good fortune led me to the largest natural colony I have ever seen, and the profusion with which it grew and ripened seed leads me to feel that by describing the location one may most nearly describe the best situation for attempting to naturalize this wayward plant. Seed has been taken from the colony for several years, care being taken always not to eradicate the plants in any one spot. If the increasing amount of seed we have obtained each season may be taken as evidence, the plant is not easily eradicated, except by vandalism. This is a view I have always held, with regard to the collection of seeds and plants of natives, by professional collectors.

This colony spreads on both slopes of a narrow valley, in a section where the soil thinly overlays a limestone ledge, or else a layer of limestone refuse, ranging from stones the size of peas to those the size of footballs. In fact on some fields in this section, after the flood of 1927, and the washing away of the surface soil, the stones lying closely together resembled a cobbled roadway, so even in size are they graded. This, then, determines the first necessity of good growth—a constant supply of moisture oozing from the sides of the hills, but never

standing owing to the perfect drainage on level spots, and the considerable tendency of all this land to slope, in some direction, quite sharply.

Whether or not the surface soil is acid or alkaline, I can not say. Perhaps such parts as are composed of leaf and other vegetable refuse may be acid. But the waters that follow these limestone strata and ooze from between marble boulders are certainly alkaline. And in many instances the plants may be found growing in soil that is but clear gravel, without a trace of humus. I believe that alkaline or neutral leaf mold, and sharp gravel, would make a perfect soil for this gentian.

There is usually some shade, but whether morning or afternoon seems to make no difference. The plant is equally good on both slopes. Perhaps it is at its best where it grows on a pastured hillside, out of the coarse grasses and amongst a scattering of low shrubs, where it stands sometimes two feet high, with twenty to thirty flowers. But it grows well on perfectly bare soil which will not support grass growth. I think that only the tendency of these bare gravel slopes to slip away prevents the carpeting of them with the gentian.

With the single exception that the plant will grow nicely in low mucky land, or in the deep loam of brook meadows, where the roots may penetrate perhaps to constant moisture, but the plant never standing in it, I feel that the foregoing is a description of a perfect spot. I have seen several other small colonies, and visited a number that were eradicated by close picking, and in all cases they have been slopes or gravelly banks, most usually of the glacial deposit type. And except for the Adirondack meadow, of which I have no knowledge

except for the one visit, in the case of other low moist spots where I have seen Gentian growing it has always been as an introduction from a more favored spot—alkaline soil, partial shade, perfect drainage, and constant moisture.

Now as to making use of this knowledge. There have been published various descriptions of methods followed to grow Fringed Gentian to flowering size in the garden. But for the few who have succeeded, hundreds have failed even to germinate the seed. And even when it has germinated, it has failed to go on from the initial leaf stage.

From the seed which ripened on the plants I brought from the Adirondacks, plants sprung up and flowered two years later. And from seed scattered on that same spot the year following the first planting, plants flowered this season. I believe that I have established a colony which will grow and spread—it has already shown signs of this last tendency, springing up at a distance from where seed was sown. The seed is simply scattered on the surface, amongst coarse grasses and low shrubs, like Steeplebush, as soon as possible after it is ripe, though there is no reason why seed properly kept

should not be viable for several months after ripening. Usually the wild plant matures its seed in late October, but rarely I have found old pods holding seed in spring.

The seed itself is small, dark colored and rough, to which and to its lightness, I believe may be credited its habit of coming into flower at a distance from the original plant or planting. It is not a seed to be eaten by birds, nor to stick to one's clothes, but beyond a doubt it will carry a short distance on a strong gust of wind or float on the smallest trickle of water.

After scattering the seed, it might be well to cover the spot with a little coarse brush, and to carefully mark it and guard it against intrusion. Flowerers probably will not appear before the second year. Perhaps some of the small plants found with one flower may be only one year old, but I think the plant truly biennial. And perhaps, too, it will be three years or more before results are appreciable. But in any case this method will succeed. I've proved it. For where a few plants flowered a few years ago, this fall fifty unfolded their fringed petals to the sun.

Shelburne, Vt.

Correspondence

SIR: Though only two species of tulips grow in my mice-infested garden, one of these does not appear in Mr. Bates's list. This is *Tulipa greigii*. Six bulbs of this native of Turkestan came to me as a gift on November 18, 1927. I dug out a hole at the foot of a bank facing southeast, lined it with small meshed chicken wire, filled it with a soil of sand, humus, and loam, and planted the bulbs in it. Only five bloomed the next spring though the sixth made foliage. This sixth bulb sends up leaves each year but has

never bloomed; the other five have bloomed gorgeously for three successive springs without apparent increase. So far, as Mr. Bowles would say, they seem hardy in this situation.

When the chionodoxas show blue I can usually find the fat yellow growing points of these tulips thrusting through the dark earth. They unfold their large leaves rather rapidly, and strange leaves they are, too, bronzy-grayish-green marked with broken lines of brownish maroon which converge like veins at both ends. About May

third the first huge flower opens, flamboyant as a poppy in mid-June. The petals are scarlet marked at the base with black margined buttercup yellow, the filaments black, bearing large yellow anthers. These vivid petals are so crimped that a half-open flower looks like a cup within a cup. They open near the ground but the stem lengthens to its full nine inches by the time the flower is mature. Opening under the sun, closing at night and staying tight shut on cloudy days, this little group of tulips keeps its corner gay for ten days or more, I should say, though I have no record of the date the last blossom drops its petals. They have a background of *Nepeta mussini* and *Artemisia frigida* hanging over stones. Against this gray foliage, their barbaric splendor makes the most startling picture of the whole year in my garden and is a telling forerunner of summer-to-come.

MARY JUDSON AVERETT.

Chatham, N. J.

SIR: The temptation to make a few comments on Mr. Duffy's review of the Alphabetical Iris Check List 1929 is too strong to resist. He is right that the spelling of Germaine Perthuis is wrong and lacks an "h." These things are the unpleasant surprises that editors come up against. One reads proof endless times. This was read eleven times alone for alphabetical order, and still things one knows quite well to be wrong are overlooked. A sort of hypnotism seems to occur and one sees the thing as one knows it ought to be. There were so many systems adopted and then discarded during the compilation of this long list that there were endless corrections. Mr. Duffy seems to think that the accompanying data to the names is incorrect. In the majority of cases it is correct in the Check List, and if Mr. Duffy had had access to all the original material the editor had he would see that the usual lecturer, catalogue-maker and writer on iris history and breeding is wrong.

As to parentages—one should not correct the Check List by the Bulletins because the Bulletins were used when the Check List was made and they had mistakes in many places. The sheets of data with breeder's original answers to questions as to the parentage of their plants were used, scores and scores of them which had all been carefully kept by Mr. Wister when he first began to collect the information. If a breeder wrote him then from his books and records and gave a parentage we should certainly feel that that is the one to go by because iris breeders seem to be very casual about either losing their records or forgetting and later writing an article in which they calmly give a quite different parentage from that sent *soon after the cross was made* and filed away in the A. I. S. files. Then there is a good deal of gossip and talk in and out of iris season, speculation as to parentage *from the shapes of the flowers*, etc. This gossip is bandied about from one iris talker to another and finally handed about and gets written down in some article (maybe published in some Bulletin) and, in the minds of some of these people who think they know a good deal, seems fact. They can rarely tell you an actual reference so you can run a thing down to its source. It is always, "so and so says." Well, I call this "Iris Rot." It can not be cured by Semesan, and a knife *would* "get" these "Iris Borners," but the punishment for sticking one into a human being, unless unlimited means (or alcohol) are back of one, is too heavy here to allow it to be tried. As far as the catalogue listings are concerned, the mistake in the Check List was in not explaining the method used.

There was no claim that the American catalogue listings were the first listings in the United States, which is what some dealers seem to think they are. These dealers appear to be personally affronted if they did not get the fine advertising they thought they would from the Check List. When

Mr. Wister and Mr. Sturtevant first started the work they had the large collection of catalogues of the Massachusetts Horticultural Society to work with. These catalogues were then arranged chronologically and it was fairly easy to search them and keep all the data in chronological order. To go back and look for first listings of varieties now is a terrific task but it is being done by me and some day it will be published, if I think it is worth it. Mr. Wister and Mr. Sturtevant found among this catalogue collection that there were practically no catalogues (except one) of American firms listing irises in any number before 1920 and, as that was the beginning of the A. I. S., they simply put in all the irises listed in the catalogues of that year of the men who had large collections. These firms were Bonnewitz, Farr and Wing. The idea was to show what varieties were in this country in 1920, not the first listing here. Certainly, if one searched old Meehan, Thorburn, Hallock and Henderson catalogues it would be likely first listings of old French, English and German introductions and species would be found in the seventies and eighties of the last century. Since the A. I. S. has registered iris names they have tried to keep up with the new first listings of the American varieties but they claim no attempt so far to make first catalogue listings in America of any foreign variety. Just as in 1920 several dealers were chosen who had enormous collections over a wide range of the genus and all varieties they had were listed to show what were in the country, so now Mr. Schreiner, Mr. Sheets, Mr. Wayman and one or two others were picked. In 1920 Francis had the biggest collection in Australia and his catalogue was completely checked to show what one could buy out there. Complaints were registered by dealers (2) against this use of a few people's names. They felt the others got advertising that way and they were sore they were not so prominent themselves and felt they deserved prominence, but

the committee feel that they discriminated against no one and only did the best they could for the majority of *iris enthusiasts*.

The reason pedigrees were omitted is because breeders either refused to allow them to be printed or else did not know them or would not reply to letters. And about the names: Mr. Duffy may criticize the addition of the name of a grower such as Cayeux to one of his originations when he has inadvertently introduced his origination under an already existing name, but Mr. Duffy probably does not know that it was the growers themselves who started this and England was the country that the habit flourished most in! I was brought up in England and have been familiar with English plant and seed catalogues for many years and we all know how they use the firm name for any particularly fine thing or strain they have introduced themselves. Mr. Perry is an example of this in iris. Perry's Blue is not a name given to that iris by the A. I. S., but because Mr. Perry had used the firm name so many times for irises it was thought best to add it to duplications. He was apparently willing and was written to about it. The firm of Vilmorin-Andrieu et Cie was so perfectly willing to prevent confusion between some of their varieties and those raised by Messrs. Cayeux et LeClerc, Caparne, etc., they added their name of their own accord or arranged with Cayeux to do the same, and Messrs. Cayeux et LeClerc have given permission to the A. I. S. to add the name to many irises they have introduced. Mr. Duffy is wrong if he thinks the A. I. S. at the present time makes arbitrary names or changes or adds to iris names without conferring directly with the originator. That may have been done the first year or two the Introductions and Registrations were published. The A. I. S. was so confident everybody read its Bulletins they served notice on people not to use certain names. In some cases the people took no notice be-

cause they did not know anything about it! I feel sure Mr. Gersdorff (the Registrar) and I are the people best qualified to speak at the present time as to whether there is co-operation between the English, French and ourselves about all these things and I can say there is *splendid* co-operation. So far we have found only two growers who are not willing to change names and one of these has changed some names. Mr. Barr was working magnificently with us and doing the best any one could to straighten things out. Unfortunately he has been very ill for most of this year and the work will have to be taken over by some one else. The great firm of Waterer has changed all the names of their new irises that conflicted with old varieties and this in spite of the names being published for two years in their catalogue.

As far as the method for selecting the Dykes Memorial Medal winner is concerned, our method is as good as any on hand at the present time. The Iris Society (England) is meditating making changes in the *specifications* as even they are not satisfactory and, in fact, are the real reason for the difficulties. Mr. Duffy says "it is not even necessary for the directors voting the award to have seen the irises upon which they vote." Mr. Duffy's ideas as to the sort of people directors of the A. I. S. are chosen from must be rather queer. While there is no *rule* that the directors should see the iris they award the Dykes Memorial Medal to, they, as judges, would not vote for anything they had not seen. I think I have attended every director's meeting of the A. I. S. since some time in 1924, and I have yet to see a director vote on a motion he or she was not entirely conversant upon. They refrain from voting when they do not know the flower. Mr. Duffy can not realize the importance of this award. I can assure him the directors *do* know the importance, and they wear themselves out rushing around the country during iris season

looking at new seedlings, and as they do not vote on those they have not seen, it cuts down the ayes and nays to a very few directors and a very few candidates and that is why so few irises have received this medal. One can not imagine what Mr. Duffy means by saying that apparently in the case of the 1929 award (to Dauntless) the directors had not seen the iris. Those who voted for it had. I had, I proposed it. I do not remember who seconded it but I know who voted and I remember every word of the discussion and why certain directors said they would like to vote but could not. Several other names of irises were brought up but the only one that came near Dauntless in quality had only been seen by one director, and besides this belonged to a color-class that already has several fine varieties in it. I fear the personal equation enters in a good deal in people's feelings about awards. Even if they know a good iris they let their own likes and dislikes of certain colors and characteristics affect them. What should be done is for the Iris Society (England) to establish a definite standard, with scale of points whereby these candidates should be judges. There should have to be a certain final number of points necessary before an award can be made and a minimum number fixed of judges (who have scaled the variety up to the standard) required, before the award is voted. If the directors of the A. I. S. were not also judges they could not vote the award at all.

Additions and corrections to the Check List will be published early in the year of a size so they can be used handily with the book.

ETHEL ANSON S. PECKHAM.

SIR: Have any readers of the National Horticultural Magazine had garden experience with *Erythronium montanum*? On July 11th, 1930, I had the biggest thrill of a thrilling North-western trip from wading through these "Avalanche Lilies" on Mt. Rainier at

the very moment of their exultation. In this protected area the numbers and sizes are nothing short of astounding. One of the Forest Service men said they had established a record with one plant discovered bearing eleven blossoms to the stem! Everywhere, even into the corners about the service courts of the hotel, they were as persistent and as abundant as dogfennel in cow-lots in the South. Up the mountain to the edge of the snow they ran, suggesting sloping meadows of daffodils and giving to me the first joyous experience of our own alpine flowers.

A letter of inquiry to Mr. Carl Purdy brought the information that time and time again he had tried *Erythronium montanum* in his lower altitude but always to be vanquished. "They remember their late blooming, and the heat is too much for them," he added.

The plant is robust and variable in height from seven to fifteen inches, thrusting its leaves and flowers up through the snow, and is called locally White Mountain Deertongue, as well as Avalanche Lily. The leaves are lanceolate without blotches and sinuous. The flowers are borne several to a stem in the form of a raceme. Here and there, but not in abundance, were spreading patches of a yellow-flowered one among the white.

In my own garden in northern New Jersey I am gratefully jubilant when I can count three of four blooms on a stem of *E. grandiflorum robustum*, so far the easiest and the most effective *Erythronium* tried.

ELLEN PORTER MCKINNEY

Madison, N. J.

SIR: It seems to me the great confusion as to which is what among *Semper-*

vivums might be somewhat clarified if the fact were recognized that very often plants sent out as *Reginae-amaliae*, *Schottii*, *Rubicundum* and all the rest, are only seedlings of these plants, therefore very likely to be the results of cross-pollenization and, if so, could never be exact reproductions.

It also seems to me that these seedlings are each a new variety which should never be sent out under the name of the seed parent. They should either be given a new name or have no name at all. The case seems quite parallel with that of the Iris. What if all of the thousands of seedling Iris with their various colors, shapes and markings were called by the name of one or the other of the parents? Some one may say, "But the seed parents of these *Sempervivums* were isolated." Even so, when the seedlings vary, cross-fertilization must have occurred somewhere.

In my opinion these fascinating little families and colonies of rosettes are among the choicest jewels of the rock garden. I eagerly gather into mine every one with a different face and demeanor. But how much more I should enjoy them—or think I should—if each had its own rightful name!

I fear now that the damage done to the nomenclature by the present flood of seedlings can never be wholly repaired. However, if every one who is trying to "true up" his collection would try to determine whether his plants were from offsets of species with legitimate names or only from seeds of such plants, much that now seems quite hopeless would straighten out.

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